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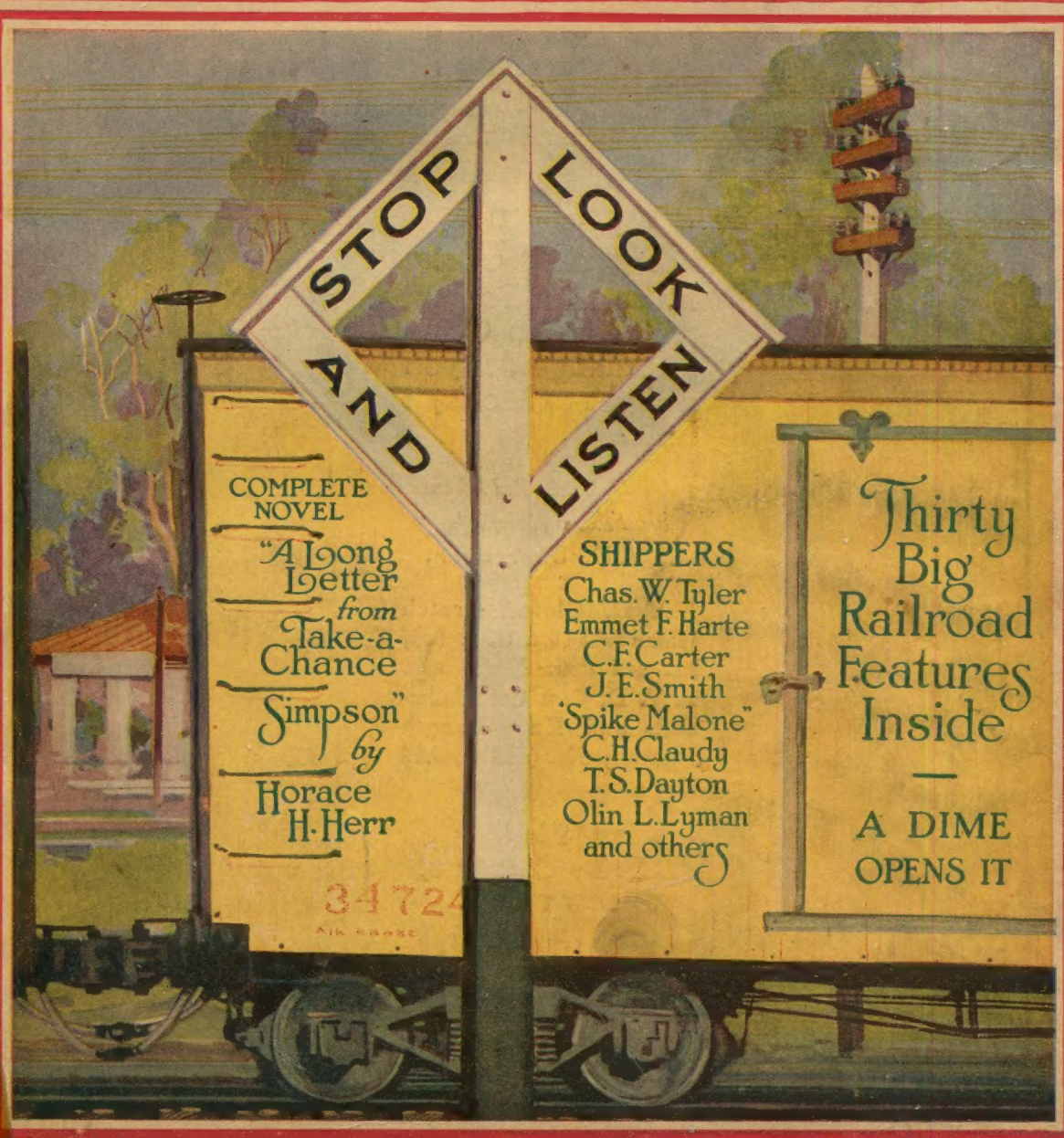
RAILROAD MAN'S MAGAZINE



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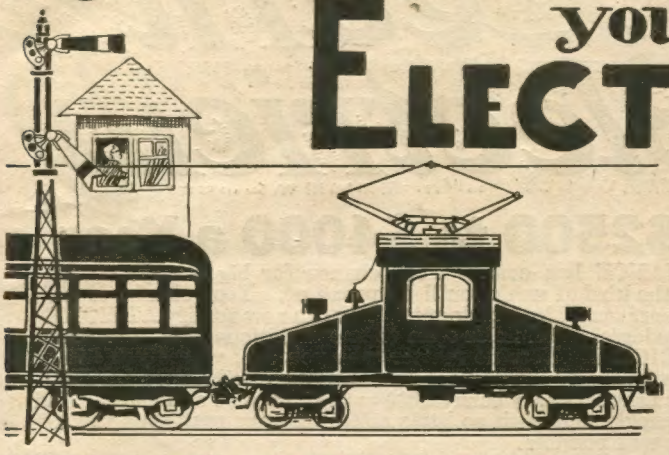

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RAILROAD MAN'S MAGAZINE

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THE FRANK A. MUNSEY COMPANY, 8 West Fortieth Street, New York, and Temple House, Temple Avenue, E. C., London

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EARN WHILE YOU LEARN. SMALL CAPITAL STARTS YOU. Experience unnecessary. $50.00 per day profit. We teach you and furnish everything. Write for information. G. A. Arnold, 122 S. Michigan Ave., Chicago, Ill.

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WILL PAY $5.00 TO $50.00 FOR LARGE CENT dated 1799. We pay cash premiums on all large cents, eagle cents, etc., and all rare coins to 1912. Thousands of coins and bills wanted. **Send 4c.** for our Large Illustrated Coin Circular. May mean large profits to you. Numismatic Bank, Dept. M, Fort Worth, Texas.

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(Classified Advertising continued on next page, second column.)

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"Four years ago you and I worked at the same bench. I realized that to get ahead I needed special training, and decided to let the International Correspondence Schools help me. I wanted you to do the same, but you said, 'Aw, forget it!' You had the same chance I had, but you turned it down. No, Jim, you can't expect more money until you've trained yourself to handle bigger work."

There are lots of "Jims" in the world—in stores, factories, offices, everywhere. Are *you* one of them? Wake up! Every time you see an I. C. S. coupon your chance is staring you in the face. Don't turn it down.

Right now over one hundred thousand men are preparing themselves for bigger jobs and better pay through I. C. S. courses.

You can join them and get in line for promotion. Mark and mail this coupon, and find out how.

I. C. S., Box 5914, Scranton, Pa.

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INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 5914, SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

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☐ Gas Engineer	☐ Stenographer and Typist
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☐ STATIONARY ENGINEER	☐ Teacher
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☐ ARCHITECT	☐ CIVIL SERVICE
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☐ Structural Engineer	☐ Navigator ☐ Spanish
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☐ CHEMIST	☐ Auto Repairing ☐ Italian

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Street and No. _____

City _____ State _____

(Classified Advertising continued from page 5.)

TYPEWRITERS

TYPEWRITER PRICES SMASHED. Spot Cash Offer will save you money. Rebuilt L. C. Smiths, Olivers, Remingtons, Underwoods and Royals; your choice of 500 machines at $10 to $15. Guaranteed for 3 years. Send today for descriptive circular. Dearborn Typewriter Exchange, Dept. 45, Chicago, Ill.

TYPEWRITERS, ALL MAKES FACTORY-REBUILT BY FAMOUS "YOUNG PROCESS." AS GOOD AS NEW, looks like new, wear like new, guaranteed like new. Our big business permits lowest cash prices. $10 and up. Also, machines rented—or sold on time. No matter what your needs are we can best serve you. Write and see—now. Young Typewriter Co., Dept. 276, Chicago, Ill.

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Ohio, West Virginia and Virginia Farms Offer Opportunities for you. $20.00 per acre up. Easy payments. Mild Climate—no long cold or hot spells. Social Life. Fertile Soil, Good Markets, High Prices. On Railroad—convenient to Trains. Write for free magazine and other information. F. H. LaBaume, Agri. Agt., Norfolk & Western Railway, 324 N. & W. Bldg., Roanoke, Va.

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Earn $125 to $250 a Month

The demand for Electrical Engineers at $125 to $250 a month far exceeds the supply. Engineering and power companies everywhere are searching for specially trained men. No previous experience necessary to take up this interesting work. Decide to fit yourself for one of these high-salaried positions.

The **American School** will train you to be a well-paid electrical worker in a short time at small expense. Our staff of practical engineers will give you individual instruction and advice. You can start in right now to prepare yourself for a better job and bigger pay.

$800 to $2400 in Three Years

"The work I did with you advanced my salary from $800 to $2400 in three years."—RUDOLPH F. KOOPS, *Dorchester, Mass.* (Graduate, Electrical Engineering.)

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Without any obligation on my part, please send me your Free Book and complete information regarding a course in [ ] **Electrical Engineering** [ ] **Telephone Engineering** [ ] **Hydroelectrical Engineering** [ ] **Power House Superintendence** [ ] **Wireless Telegraphy.** R. R. Man's, 5-16

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DYKE'S BOOKLETS FREE will tell you how to make **GOOD MONEY** as auto repairman, chauffeur or salesman. **DYKE'S WORKING MODELS** will positively teach you by mail, and our new idea **EMPLOYMENT PLAN** will assist you in getting started. Let us tell you about our successful students and the **SALARIES** they are drawing. Our simplified course and **WORKING MODELS** cover everything about automobiles. *Write today—NOW!*

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and let me see what you can do with it. Illustrators and cartoonists earn from $30 to $125 a week or more. My practical system of personal individual lessons by mail will develop your talent. Fifteen years successful work for newspapers and magazines qualifies me to teach you. Send me your sketch of President Wilson with 6c in stamps and I will send you a test lesson plate, also collection of drawings showing possibilities for YOU.

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Totally new system. Based on *Gymnastic* Finger Training! Brings amazing speed—perfect accuracy—BIG SALARIES. Easy for anyone. First day shows results. Learn while working.

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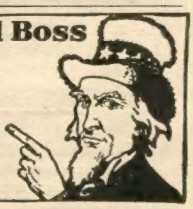
Uncle Sam is a Good Boss

He pays good money and the jobs are pleasant, dignified and good for a lifetime. Why not try for a good government job? The examinations are not hard to pass if you let the International Correspondence Schools show you how. Write today for booklet which tells how hundreds have got positions. It's *free* and without obligation.



International Correspondence Schools
Box 5912, Scranton, Pa.

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SAVES ONE HALF **DIRECT FROM THE MAKERS** SAVES ONE HALF

We defy duplication in price, workmanship or quality. We positively save you jobber's and storekeeper's profit. Make comparison with any house. You will be convinced that we are MONEY-SAVERS in Diamonds, Watches, Jewelry and Silverware. Write for Special Catalogue 104. Our prices are net cash with examination privilege.

The Railroad Man's Dollar

EACH year the railroad men in the United States receive $1,401,000,000 or more in wages. From section hand to railroad president, these are the figures. Every dollar represents just so much purchasing power — one hundred cents' worth. Every day you spend money for something — food, clothing, shelter, amusement, investment — the list is almost endless. Do you get the most for each dollar you spend?

Everything you want isn't "Just around the corner"

If it were, and you were an expert in values, your buying problems would be very simple. Unfortunately you have to depend only on your judgment, the advice of your friends or what happens to be offered at a near-by store. You know *your* business clear down to the ground, but when you buy a piano, for instance, do you know exactly what you want—do you know PIANO VALUES? The same thing holds true of practically everything.

The Railroad Man's Magazine can help you

We have on our list, and we are in touch with hundreds of firms in every line of business in the country. No matter what you want to buy (see the suggestion list on this page), The Railroad Man's Magazine will help you with information and advice that will insure economical purchase and complete satisfaction.

Can We Help You Buy Any of These Things?

Artificial Limbs
Agents' Articles
Automobile School
Bicycles
Billiard Tables
Boats
Books
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Business Opportunities
Cameras
Cigars
Cigarettes
Civil Service Schools
Clothing
Correspondence Schools
Cutlery
Electrical Goods
Engineering Instruction
Firearms
Food Products
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House Furnishing
Household Supplies
Investments
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Marine Engines
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All you have to do is to fill out the coupon below and mail it to the "Railroad Man's Dollar Department." By return mail we will gladly put you in touch with several firms that will give you complete information, that will aid you in making a choice of the best articles and biggest values in their various lines.

The aim of The Railroad Man's Magazine is to be of service to you in every way possible. That is why this new department is instituted. Take your favorite magazine into your confidence and let us help you with your buying problems.

Don't waste time — don't "shop" around. Write us today.

The Railroad Man's Dollar Department

8 West Fortieth Street, New York

The Railroad Man's Dollar Department, 8 West Fortieth Street, New York.

Gentlemen:

I am considering the purchase of the following articles, and would like to have your information and advice:

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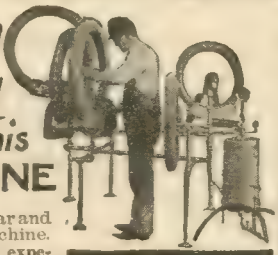
Name ..... Address .....

5-16

You Can Earn $250 A MONTH With This NEW MACHINE



Many are doing $3,000 a year and better with this new machine. **You can too. You need no experience.** We teach you FREE in one simple lesson. Start right at home. Everywhere there's plenty of money and big cash profits waiting for ambitious men.

THIS IS THE BUSINESS FOR YOU

A business all of your own. Requires little capital and grows fast into a real factory—a real manufacturer. **Open a Tire Repair Shop** with **Haywood Equipment.** Let the money roll in. Auto tires need mending constantly. There is your profit. Owners eager to give you their business. It means a saving of money to them, and big cash returns for you.

JUST MAIL THE COUPON for this FREE Book

A valuable guide to power and wealth. It gives the complete details. How to start. How to succeed. Tells all about **your opportunity.** Shows how easy the work can be done. Shows the big profit in this new field. Write for it today. A post-card will do. Get your FREE copy.

HAYWOOD TIRE AND EQUIPMENT COMPANY
754 Capitol Ave.
INDIANAPOLIS, INDIANA

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Please send me your book as you promised to do. This of course does not obligate me in any way.

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Rider Agents Wanted

in each town to ride and show a new 1916 model **"RANGER"** bicycle. Write for our *liberal terms.*
DELIVERED FREE on approval and **30 days' trial.** Send for big **free** catalog and particulars of *most marvelous offer* ever made on a bicycle. You will be astonished at our **low prices** and *remarkable terms.*
FACTORY CLEARING SALE—a limited number of old models of various makes, $7 to $12. A few good second-hand wheels $3 to $8. Write if you want a bargain.
Tires, lamps, wheels, sundries and repair parts for all makes of bicycles, *at half usual prices.* **Write us before buying.**
MEAD CYCLE CO., DEPT. G-31, CHICAGO

WHITE VALLEY GEMS Look and Wear like Diamonds

Are being worn by the wealthiest people everywhere. Stand acid and fire diamond test. So hard they scratch a file and cut glass. **Brilliancy guaranteed twenty-five years.** Will send you these wonderful gems in any style, **14 K, solid gold, regular diamond mountings**—by express—charges prepaid, **so you can see and wear them before you buy them.** *Write for big illustrated catalog and Free Trial Offer*
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If so, you are NOT wearing **Buchstein's Vulcanized Fiber Limb** which is soothing to your stump, cool, neat, light, walls not much thicker than a silver dollar, strong.

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Sold on easy payments to good people.
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Special! A complete law library, 12 vols., one of the most comprehensive legal reference works ever published, is given free with our Course and Service. This is a limited offer made strictly for advertising purposes in connection with a *special reduced tuition offer.*

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Put your name and address on the coupon or send a letter or post card now for the big, new 173-page book, absolutely free. No obligations of any kind. Write today—now—while our special offer is still open.

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Gentlemen:—Please send me, absolutely free and prepaid, your new 173-page book, "The Power of Law Training." Also send me full particulars of your *special price reduction offer.* It is distinctly understood that I am not obligated in any way whatever.

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Come to Detroit
the automobile center
and
LEARN THE AUTOMOBILE BUSINESS

Detroit trained men get preference over all others and get jobs quickly. No other city, no other school can give you what Detroit offers. Think what it means to learn in Detroit. Every factory knows us, endorses our school, glad to get our graduates, offers them best territory in which to sell cars and start garages. Unlimited opportunities here. You're right in the middle of the great auto activity. Men are needed everywhere as testers, repairmen, chauffeurs, garage men, and salesmen. Splendid chance to start in business. Hundreds of our graduates are doing it.

Earn $75 to $300 a Month

We teach you to handle any auto proposition. **Our equipment is complete.** Students actually build cars from start to finish, getting regular factory training in assembling, block-testing, road testing, everything. **That's the Detroit way.** Special complete course in **Oxy-Acetylene brazing and welding,** separate from regular course. All leading types of starting, lighting, and ignition systems in operation. Learn to time motors, adjust carburetors, magnetos, valves, bearings quickly and accurately. **Six-cylinder Lozier** and **8-cylinder King** are used for road instruction. We have a new Chalmers "6" chassis with overhead camshaft motor, the latest thing out. Just added 1916 Delco System as used in Buick, Hudson and Packard Twin "6."

Detroit is the Place to Learn—Start Any Time

There are 44 auto factories in Detroit, and hundreds of accessory and parts factories. Our students have the privilege of going through any or all of them, including Detroit electric service department, while taking our course. You can't get these advantages anywhere else. **Detroit is the automobile center.** You make faster time here and you get **practical instruction.** Come to Detroit and learn the business right. Enter classes any time, any day. Three classes daily, morning, afternoon and evening. You can work in the factory in day time and take course at night. There is a great demand for Detroit trained men. Garages throughout the country write us for men. Auto factories write and phone for men constantly to fill permanent places. Why not **fit yourself** for one of these **good paying** positions?

The demand is greater than the supply for competent trained men. The following were clipped from daily papers in all parts of the U. S.

Wanted—Experienced motor mechanics, bearing scrapers, assemblers, repairmen; good wages. Henderson Motorcycle Co., 1158 Cass.

Wanted—Chauffeur, must be good driver, steady and reliable; one with knowledge of Pierce-Arrow cars preferred; no other but good mechanic need apply. Address Box B, No. 100 Free Press.

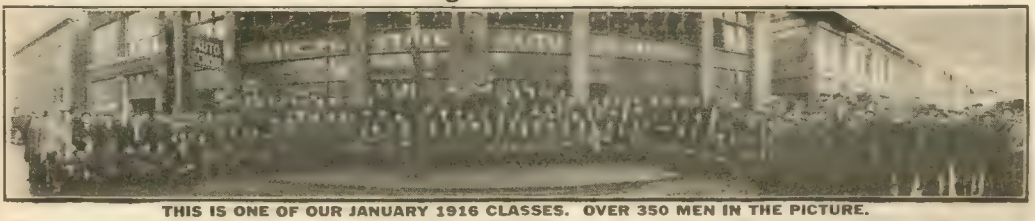
Wanted 10 Road Testers, 20 garage repair men, final assemblers. Maxwell Motor Co., Inc., Oakland Ave. Plant.

Wanted 40 Drivers. Come ready to work. Maxwell Motor Co., Inc., Oakland Ave. Plant.

Wanted Block Testers. Apply Continental Motor Mfg. Co.

Wanted—High grade retail automobile sales manager. Box E. No. 52.

Follow the Crowd to the Michigan State Auto School. Come to Detroit



THIS IS ONE OF OUR JANUARY 1916 CLASSES. OVER 350 MEN IN THE PICTURE.

Start a Garage and Sell Cars—Be Independent

We have made the biggest deal yet. Just completed arrangements with the Automobile factories to put them in touch with men who intend going into business for themselves. Think of getting inside information as to best territory and where the garages will make most money. The auto factories keep close watch—they are looking for Detroit trained men to represent them and start garages. Men who **know** the Auto business from A to Z are in biggest demand. **Come here and start right**—go through the factory. Learn the best selling points—get the information first handed and dont wait, jump on a train and come now.

We have made arrangements with a large eastern investment firm (with millions of dollars), to back competent, reliable, Michigan State Auto School Graduates, who want to go into the garage and selling business. **These Capitalists know where the money is to be made**—they are ready to back the right kind of men—Men who are trained at the Michigan State Auto School and are competent. Have you been waiting for such an opportunity? Then **come to Detroit** as hundreds of men have done, **hurry,** don't wait. You can complete the course in from six to eight weeks. Then go into business for yourself. BE INDEPENDENT. Make the big money. Get started NOW.

Money-Back Guarantee

We guarantee to qualify you in a short time for a position as chauffeur, repairman, tester, salesman, demonstrator, garage man, or automobile dealer, paying from $75.00 to $300.00 monthly or refund your money. We have constantly more requests for Detroit trained men at GOOD salaries than we can supply.

SEND THIS COUPON TODAY

Michigan State Auto School
Dept. 245, 11-19 Selden Ave., Detroit, Mich.
Gentlemen: Send to me absolutely FREE "Auto School News" and New Catalog or better still you can expect me about.....

Name.....

Street.....

Town.....State.....

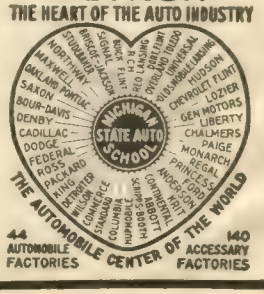
Automobile Industry Offers Biggest Possibilities

No other field is so big—no other business so permanent. Every place, no matter how small, will support a garage. Think of it—nearly a million new automobiles will be sold this year. Think of the money in selling and repairing. **Are you going to reap some of the golden harvest?**

Act Quickly—NOW

Fill in the coupon and mail it now, get full particulars—get "Auto School News" and New Catalogue fresh from the press. They are both ABSOLUTELY FREE. Or better still, jump on a train, as hundreds have done, and come to Detroit, the "Heart of the Automobile Industry" and learn right. Remember, you can enter classes any time any day. Act quickly, **NOW.**

Michigan State Auto School
The Old Reliable School
Dept. 245 11-19 Selden Ave., Detroit, Mich., U.S.A.



Trained Traffic Men In Big Demand

Young man, here's your chance to get into a new uncrowded profession—one that lends dignity and prestige, in which the pay is big, the work pleasant—fascinating. Trained traffic men are wanted everywhere. Recently enacted rate laws and Interstate Commerce regulations have literally created **thousands of positions**—only a comparatively few are qualified to fill them.

Be a Traffic Manager

At $35 To $100 Per Week

Now is the time to train for this profession. We'll pave the way for your success. Teach you to become thoroughly versed in strategy of shipping, including how to **route shipments,** how to obtain **shortest mileage,** how to **secure quickest deliveries,** how to **classify goods** —and obtain **lowest rates.** In fact train you so that you can qualify for an important, **high salaried** railroad or industrial traffic position.

We Train You By Mail

in your own home—you need not leave your present occupation or sacrifice your income.

The course is prepared by a number of the greatest traffic experts in America. It covers thoroughly every feature of Traffic and Traffic Managership. It is different from and more complete than any other method of home training. Easier to grasp and thoroughly practical. Anybody who can read and write intelligently can master it. Endorsed and recommended by heads of leading railroads and big concerns of the country who recognize our course as giving the proper training required for important positions in the Traffic and Transportation field.

Short, Complete Course —Small Cost

Our Home Study Course in Traffic Managership fits you in a short time so you can expertly handle a big traffic job. The cost of training is small compared to the big rewards—and we can accept payments to suit you.

Today there are over half a million shippers in the U. S. All need traffic men. Our foreign trade balance is now rapidly approaching the $2,000,000,000 mark. American goods are being shipped to all parts of the world. The tonnage forwarded by manufacturers and handled by railroads is the heaviest on record. Lake, railroad and ocean routes are literally choked with goods. As a result, big industries and railroads have urgent need for trained traffic men. It is a field which is constantly expanding. The demand for traffic experts is daily increasing and the positions are permanent.

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THE
RAILROAD MAN'S
MAGAZINE

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R. R. CHIEFS WHO ROSE FROM THE TRACKS.

THE "BRAINS FAST FREIGHT," WITH A CONSIGNMENT OF GINGER, PERSONALITY, GRIM DETERMINATION AND SLEEPLESS ENERGY, HAS CLEAR RIGHTS OVER ALL OTHER TRAFFIC ON THE ROAD TO SUCCESS—THE BIG OPPORTUNITY SCHEDULE CONTAINS NO "LIMITEDS."

BY THEODORE BENTON.

THE author of that classic message, "Off again, on again, gone again: FINNEGAN," grasped in a nutshell the essence of success on the rails or in any line of activity. In wiring the immortal words he saved the time of the telegrapher and of his superiors at headquarters—and incidentally his own. In heeding the demand to "get off the long stuff" and down to tabloid *Finnegan* took a seven-league stride toward promotion. *Finnegan* should have finished high in the hustling of traffic.

The men supreme in the railroad world of the United States to-day qualified as "Finnegans" in a double sense. They learned to save time in a line of effort where time is paramount—and most of them learned it in soot and grime and grease, from the bottom upward.

Perhaps you are of sufficient importance—or represent interests sufficiently important—to gain an audience with the head

FREDERICK DOUGLASS UNDERWOOD.

HIS FRIENDS CALLED HIM A FOOL WHEN HE THREW UP A GOOD JOB AS ELEVATOR CLERK TO BECOME A BRAKEMAN AT LESS MONEY—BUT NOW HE'S PRESIDENT OF THE ERIE AND THE CROAKERS ARE STILL SQUATTING ON THE SAME HIGH STOOLS.

From a photograph by Pirie Macdonald.

of a great American railway system. The door of a European monarch is not guarded more closely.

You are ushered into the presence of a man whose word and act wield enormous power over men and affairs, whose time is worth incalculable sums of money. He sits at his desk of polished mahogany or sturdy oak, a modest, unassuming, uncrowned king. And you will get just as much of his time as your visit is worth, for more than ever he is now "Finnegan"—and the saving of time is golden.

Our Uncrowned Kings.

There are some staggering contrasts between a European monarch and an American railroad king. The European ruler took the throne because he was the son of his father. The Yankee railroad king pulled himself up into power by his bootstraps. His majesty beyond the seas wears jeweled crowns and embroidered robes. Uncle Sam's potentate wears, as like as not, a pepper-and-salt business suit and a black derby. Your ruler of Europe is controlled by tradition. When your American Napoleon of the rails rests from his labors he has left traditions behind him for his country's inspiration.

Truly the American railroad head is an uncrowned king, and the dazzling, splendid, urging thing about it is that he has so become through triumph of mind and will and sleepless energy. The success of a Hill, a Smith, a Lovett, an Underwood to-day had a common origin in an initial thought lodging in that space above the ears which too many young men, now as always, use only for a hat-rest.

Ambition Backed by Work.

That thought grew into a definite ambition backed by toil and grim determination and growth. The railroad giants of to-day waxed from humble beginnings as rodmen, as track-walkers, as gang-hands, as telegraphers, as brakemen. Through the help only of that jinnee of concentration that is at once the hardest and kindest of taskmasters, they graduated from overalls to an opulence of power in scope far beyond the fondest dreams of an ordinary European king who signs himself the "Third" or the "Sixteenth," as the case may be. And the mission of the American railroad king is infinitely more worth while, for it is all constructive and upbuilding.

Opportunity in the American railroad world is unique in that it limitless. The very nature of the business of the singing rails, the fervent race against time, the broadening area of applied force, makes for this. There is something in the atmosphere of belching smoke and hissing steam and clicking rails which breeds the divine unrest that makes for the world's progress.

The young man of the railroad to-day, in overalls and in earnest, has sufficient guarantee of success. First, let him learn "Finneganism," which is getting to the desired end by the shortest route. Then let him read a few romances of realism, embraced in the careers of American railroad heads to-day. They plowed up through the cinders so fast that they hadn't time to get any of the impediments in their eyes. Then let the young man go and do likewise.

Underwood's Dream "Stayed Put."

Frederick Douglass Underwood—whom his friends call "Fred"—is president of the Erie. The Erie was anciently supposed to be the side-splitter in the alleged joke-books. It is now a real, honest-to-goodness system, though it was no joke putting it there. That its president was equal to the job without denting his genial optimistic nature speaks volumes for his unfailing fund of good humor.

A man, satisfactorily to tackle the problem of the Erie, had to have grown some. Underwood was big enough. To see why, we skip back to a boyhood dream that "stayed put," unlike the circuses and menageries we used to rub off our slates.

Underwood drew a picture of a railroad in his mind and has it there yet. When he left a country college up in Wisconsin, before completing its course, he had an illusion that some one would hire him at a salary of several thousand dollars a year for what he knew. At this, he lost out. He ended by working in a sawmill at Fort Howard, and did all the hard jobs from loading slabs in the yard to firing boilers.

With him worked an Englishman named George Thompson. Thompson was a fine specimen of manhood, but illiterate. He was one day offered a chance to work as a clerk at the terminal station of the railroad that ended at Fort Howard. Mistrustful of his ability to qualify as such, he asked

ALFRED H SMITH

BECAUSE HE IS A GREAT LEADER MR. SMITH HAS MOVED UP, GRADE BY GRADE, FROM SWINGING A PICK IN THE CONSTRUCTION GANG TO RUNNING THE NEW YORK CENTRAL LINES.

From a photograph by Dudley Hoyt.

Underwood to go over with him and scout about and find out how much clerical work he would be called upon to do. They discussed the matter, and it developed that Thompson could write his name and read a little.

Underwood advised him that it would be unwise to take the job for two reasons. He would lose the job he had, and he would embarrass his fellow Englishman, who was responsible for securing for him the offer of the job at the station. Thompson's gratitude evidenced itself in turning Underwood over to the Englishman, and the job became his. Here he stayed a year and then left Fort Howard for Milwaukee, where he took service with the Chicago, Milwaukee and St. Paul Railway.

Right here it is proper to interject an instance of the friendship of Underwood for Thompson. Years later, after he had become general manager of a railway, Underwood visited Green Bay. It took a lot of time to find his old friend "Joe" Thompson. He found him, bent with years, a laborer, working on the piers.

He asked Thompson for a few words with him, and received a reply that he had no time to talk, inasmuch as he had a "piece" job and time with him was money. He utterly failed to recognize Underwood in his new habiliments. Underwood succeeded in persuading him that he might make a fair day's wages by talking with him a little while. The result was they went away together and had a long talk, and whoever talks with Underwood to-day will find that he has a warm spot in his heart for Joe Thompson.

Made $1,000 a Year as Clerk.

Underwood then took service at Milwaukee as an elevator clerk. His pay finally became a thousand dollars a year. He threw it up one day to become a brakeman at forty-five dollars a month. His fellow clerks and friends advised him that he was a fool, and that he was not only losing money by the change but in the end would break his neck, as was the habit of brakemen in those days. Twelve years later he was superintendent of a division. Some of his old associates were still clerking and others had lost their jobs.

In the interval he had been a conductor on the Chicago, Milwaukee and St. Paul. His train encountered a wreck soon after the disaster. Then Conductor Underwood showed "Finneganism," which is to say grasp. He helped the injured, transferred passengers to his own train, and ran it back to a telegraph station.

Did he wire a long report? He did not. He embraced the tragedy in a laconic call for a wrecking crew with instructions for the care and routing of passengers.

Here, as is likely to happen, luck walked side by side with "Finneganism." On the wrecked train was a silent witness, Sir William Van Horn, then general superintendent. For this exploit Underwood was made assistant superintendent, then division superintendent.

Eighteen years after he started in the railroad business Underwood was general manager of the Minneapolis, St. Paul and Sault Ste. Marie Railway. He built this road about 1,100 miles across Wisconsin, Michigan, Minnesota, and Dakota, christened about seventy stations along the line of march, and had adventures remindful of the old Beadle library. He fairly fed on Wild-West romance, including the Rosebud Indian uprising and similar gentle diversions. His reign upon the Erie must possess a certain sedateness by comparison.

To pass on a bit, if any one should spring that old gag, "You useter work on the B. and O., usen't you?" on Fred Underwood, he could truly reply, "Yes, I used." Through his splendid work in the Northwest he was called in 1899 to rehabilitate the Baltimore and Ohio, as general manager and second vice-president. For two years he *worked*, and the railroad world sat up and took notice at the results he achieved.

In 1901 he was selected as president of the Erie, and there he has been since. He has grown and grown in the estimation of the traffic world—and the Erie has kept pace with him. It had to.

Big in body and mind, six feet tall, thewed like a "scrapper," kindly in spirit, nearly sixty and looking fifty, "springy" as forty, "Fred" Underwood is a bluff, fervid, two-fisted railroad man.

For the benefit of the young aspirant in overalls of to-day, let there be quoted a meaty pointer toward success from Underwood's lips. He says:

"Conceit is an asset for a young man if he has the knowledge and character to back it up. The right conceit is not overestimating one's powers. It's the proper knowledge of his own qualifications, enabling him to rise superior to all conditions and take charge of any situation."

How Smith "Finnegans" Men.

Alfred H. Smith, the president of the New York Central and Hudson River system since 1913, has always been an apostle of "Finneganizing." Such was his pace that in the early days they used to call him "Meteor" Smith. However, the pseudonym doesn't strictly fit. A meteor gets somewhere, but makes only a dent in the atmosphere. Smith has thickened the scenery as he whizzed.

The rise of this man is one of the most remarkable of American industrial romances. The great secret of it is his dominance over men, in his almost uncanny

ROBERT S. LOVETT.

WHILE STUDYING LAW HE TOILED AS PLOWHAND, STATION-AGENT, AND FREIGHT-CLERK—HARD WORK AND LOTS OF WELL-DIRECTED BRAINS HAVE MADE HIM THE HEAD OF THE SO-CALLED "HARRIMAN LINES."

From a copyrighted photograph by Gessford, New York.

quality of welding their wills to his own. His method is best explained by this anecdote, told by a man closely associated with him for years.

"I have seen him step out of his car in his street clothes in the middle West to find a hundred laborers standing around in a cut packed with snow, with a mile of traffic stalled on their side of it. I have seen him take one glance at the snow and the men, then grab a shovel out of the hands of the nearest man, and lead the attack on the drifts with the mercury at zero and only that business suit for protection.

"In a moment every one of those laborers would be tearing into that snow like gophers seeking their holes. In a few hours the feat that looked impossible was won and traffic was again under way. If it was humanly possible to get results, Smith got them.

It is the dream wedded to the deed that produces the miracles of American railroad romance. Smith at sixteen started work for the Lake Shore as a messenger-boy. He got a minor job in the purchasing-agent's department. It didn't suit him; his fancy inclined to the physical basis of the business. He got a job as laborer in a construction gang. A crowbar was the forerunner of the scepter.

His own laconic report, sent out to an interviewer, of those early days, says:

"Resigned to go into the construction gang engaged in changing the grade and reconstructing the Lake Shore west of Toledo."

He Looked to the Future.

Which statement contains in tabloid the story of a giant ambition. A member of one of his old gangs tells this anecdote. He walked with Smith four miles to a stream west of Toledo where a freshet had swept away a bridge and tied up traffic. It was hours before the dawn when they arrived. They sat on the splintered approach and the black skies rained on them and the wind howled while they waited for the rest of the gang to arrive.

The man with Smith indulged in a diversion common to many brethren of the rail. He "knocked" the business in the phraseology common to the unsuccessful.

"No future in it," said he.

"Oh, I don't know," commented Smith, always a man of few words. "The future's all right. It's like anything else; if you earn it you'll get it."

"Why, what office do *you* expect to hold?" sarcastically asked his companion.

A furious gust of wind intervened. Then Smith answered.

"The presidency," he said.

His companion says he laughed then. But he did not laugh years later, when telling the story.

A Born Master of Men.

Smith is a born master of men. He was soon promoted to gang foreman. Then they made him general foreman of construction. His magnetism over men won him the chance. He had then no technical qualifications. He secured those later—and quickly, as he absorbed all knowledge.

In 1890 he became superintendent of the Kalamazoo division of the Lake Shore. The results he won shifted him in turn to the Lansing, Franklin, and Michigan divisions. In 1901, when the new general superintendent was looking over the records of the division superintendents, he picked Smith as assistant. The same year he became general superintendent and was transferred to New York.

In 1903 he was made general manager of the Central; in 1906, vice-president and general manager; and in 1912 vice-president of the lines west of Buffalo with jurisdiction over operation, maintenance, and construction of all lines of the Central east and west of Buffalo, with a few exceptions. Now senior vice-president, he was the natural successor to the retiring president, W. C. Brown.

Modest, quiet, forceful, of intense mental energy and abundant physical strength, direct, the apostle of "do it *now*," seeing both big and small—that's Smith and the "reason why" of him.

He also has a recipe for success; it is of illuminating simplicity:

"There is but one maxim I have tried strictly to cleave to—do the best you can. The trouble with some young men just starting out in life is that they give more thought to what is to follow in their hours of recreation than they do to working hours. The youth who works with his eyes glued to the clock will sooner or later find himself seeking another job. I have seen hundreds go, and the procession is unending."

Which explains in a nutshell why, after

a certain point, the job has to go seeking the man.

Lovett Took the Blackstone Route.

"All roads lead to Rome," in the high places of the railroad game as elsewhere. Robert S. Lovett—upon whose shoulders descended the mantle of the "Little Giant," Harriman, at the express wish of that great railroad man when he lay dying at Arden—took the Blackstone route. Through the interpretation of railroad law he forged ahead. Nevertheless, like the rest, he did his first railroad work in overalls and he labored with his hands.

About forty years ago Lovett was working on a field belonging to his father, a struggling farmer near Shepherd, Texas.

DANIEL WILLARD.

HE STARTED AS A FIREMAN AND PROMOTION CAME NATURALLY, BECAUSE HE HAD PREPARED FOR IT AND DESERVED IT, TILL TO-DAY HE IS PRESIDENT OF THE BALTIMORE AND OHIO.

BENJAMIN F. YOAKUM.

WHEN STILL A RODMAN AND CHAIN-BEARER HE CONCEIVED THE IDEA OF BEING THE SOUTHWEST'S EMPIRE-BUILDER, AND WHEN HE HAD RISEN TO THE PRESIDENCY OF THE ST. LOUIS AND SAN FRANCISCO LINES HE EXPANDED THAT ROAD FROM A SYSTEM OF 1,120 MILES TO ONE OF 6,000.

From a photograph by Brown Brothers, New York.

He leaned over his plow-handles, absorbedly watching something new. Presently he left his team to take a closer view. A work-train stood on a narrow-gage railway. The Houston East and West was being pushed through the "piny woods" toward Shreveport.

Then and there was young Lovett's destiny decided. He got a job hauling timber to the line. And his vision appears to have been as clear and his ambition as pronounced as in the case of Smith of the Central. For he told a boy friend, "Some day I'll own that railroad."

So he started in to do that little thing. He is wont to say of those early days:

"Work? Why, I did nothing else!" (So far as that is concerned, he does little else now.)

After that narrow-gage road was completed he moved to Shepherd and secured a job in the general store for ten dollars a month and board. He drove to the depot for the freight. He watched his chance and became the station-agent. He learned to run an engine and switch cars. Then he announced to his friends that he was going to study law.

"But I thought you were going to run that railroad?" said a friend and former employer, Mr. Smith.

"Oh, that's all right; I shall," quietly replied Lovett.

And Smith, in telling the story long afterward, said he had enough confidence in him, even then, to believe him.

Lovett came to Houston and went first to the freight-office of the same old railroad. C. B. Udell was then local agent in Houston.

"I want a job," said Lovett; and the agent gave him a clerkship at forty dollars a month. Years afterward, when Lovett was named as president of the combined Houston and Texas Central and the Houston East and West Texas, he made Udell treasurer of the combined roads.

Studied Law at Night.

Lovett was a good clerk. He studied law at night. He got a place in the office of then Congressman Charles Stewart and was admitted to the bar. He returned to Shepherd and gained a reputation in trying cattle-cases for the railroads in justice courts. He won them; he possessed the confidence of his fellow Texans to an extraordinary extent. He was the "Honest Abe" of the Lone Star State.

He was called to Houston as general counsel. He gained a similar post for the Texas and Pacific at Dallas. Then he was summoned to defend the Gould interests when the Huntington hand was reaching southward to make a system, and conducted the defense successfully.

Meanwhile Harriman had been watching him. Lovett, declining the highest preferment at the hands of Gould, became one of the law firm of Baker, Botts, Baker & Lovett, representing the Southern Pacific. He amalgamated the system under Harriman and gained his initial end—and then some. With his election to the presidency of the H. E and W. T. he headed the original strip of his dreams and a good deal more.

That was only the beginning. The railroad world knows the rest. It reads like a romance; but it's made up of cold, hard facts. Applied energy in results outvies in luster all the stuff of glittering dreams, unbacked by effort, that ever existed. This tall, nervous, stern-visaged Texan—transplanted like many another mental giant to New York, a dynamo of activity, a seething volcano for work—sums it up trenchantly enough to an interviewer:

"Success? Well, I think if a young man is going to succeed, why, he just goes and does it. He doesn't talk about it: and talking about it won't help him."

Luck Wouldn't Let Willard Alone.

There are plenty of instances of "Opportunity's Bald Spot," at which men grab and miss, but once in a while you hear of how that elusive sprite, Good Luck, fairly hitches into a man's hair and drags him upward.

"Fred" Underwood, the head of the Erie, and "Dan" Willard, the president of the Baltimore and Ohio, have been long close associates and friends in the steel-ribbon world. Underwood tells the story—but let's start a paragraph ahead of that.

Willard first saw the light in North Hartland, Vermont, in 1861. At eighteen he left the farm for the railroad. He became fireman and then "hogger" on the new line now known as the Boston and Maine. Then he went West and ran engines on the Lake Shore and the "Soo" line. Mr. Underwood became general manager. Presently he wanted a trainmaster and looked over the list.

The story is now Underwood's, and in its telling tradition receives a jolt flush in the right eye. According to tradition, Willard should have leaped at the chance like a jaguar at an antelope, crunched Underwood's palm in acknowledgment, and walked out upon traditional air.

Did he do any of these things? Listen!

"I had noticed Willard," says Underwood, "and I sent for him. I told him I wanted him to be trainmaster at $125 per month. Willard replied that he was satisfied with his present job; that he was

making, including extras, about $150 per month with a lot of time off, and was able to spend three or four nights per week with his family. But I finally half-persuaded and half-bulldozed him into taking that job." And that is how Willard was started in executive work.

JULE MURAT HANNAFORD.

TO BEGIN WITH HE WAS ONLY A CLERK IN THE CENTRAL VERMONT'S GENERAL FREIGHT OFFICE AT ST. ALBANS, BUT HE NEVER LET AN OPPORTUNITY SLIP, SO IT IS NOT SURPRISING THAT HE GOT TO BE PRESIDENT OF THE NORTHERN PACIFIC.

He Gravitated Upward.

It is not at all probable that Willard retains any animosity toward Underwood for making him take that job, for it started a career for "D." that makes Aladdin's jinnee look like an amateur as a miracle-worker. Willard himself said afterward:

"From the time I became trainmaster promotion came to me naturally, and without my having to do anything particular to earn it."

This last remark will be greeted by railroad men with a smile. It is only the expression of the man's charming modesty. Underwood knew, away back; and the rest of the world has known for some time. Valued assistant of Underwood, purloined by Hill, the Lion of the Northwest, to aid in the giant's vast schemes there; called back east as a potent force to direct the growth of the Baltimore and Ohio, of which he has been president since 1910;

the men who have worked shoulder to shoulder with Willard know how he has earned his promotions.

Withal he has found time to qualify as a student to an extent that has won for him university degrees. And he has developed into a forceful orator, this last to the lasting wonderment of his friend Underwood. Willard is just the natural fruition of a tireless constructive mind that does not sleep.

The name of Benjamin F. Yoakum, for years the Frisco Lines head, is a great, big, mouth-filling one in Texas, the State that it keeps a limited hustling to cross at all. Of all the railroad giants of Uncle Sam's broad garden there is no more picturesque figure than Yoakum.

Yoakum's rise has been phenomenal. His dream has been that of the largest genius, to assist in the material development of his country, and in this he has succeeded on a giant scale. He has been to the Southwest what Hill has been to the Northwest. Both were "empire-builders."

It is hard to compute the truth of the saying, "Thoughts are things," save in a flashing, concrete instance. Two young men sit next each other in an office. The mind of each is busy. One mind is occupied with thoughts of the latest tango steps. The other mind is on the job. You have at least two guesses on the future of each youth.

You need but one. The tangoist has no future.

Yoakum, the "Single-Idea Man."

Yoakum has been called an idea man. "A single-idea man" would fit him better, since the single-idea men set the pace for the world.

With Yoakum the idea began as a boy and when he was a rodman and chainbearer in the construction work of a primitive railroad line in Texas the idea was his constant companion. A constructive idea makes the best kind of a chum. And it's a hot pace-maker. Yoakum has for years been running a dead heat with his.

Yoakum was born on a farm in Limestone County, Texas. After serving his apprenticeship in construction work he took up other departments and worked at various jobs for various lines till July, 1896, when he was appointed vice-president and general manager of the St. Louis and San Francisco Railroad Company, commonly known as the Frisco system.

Aha! A Chance to Show 'Em!

Here was his opportunity. His ability vied with his vision. This welding makes for the performance of modern miracles of industry. Yoakum's name to-day is paramount in the Southwest. He has been a master builder. He has only begun. The art of business in the large is exactly the same as those of music, of painting, of drama. The greater the Alexander, the more worlds he sees as he nears the western slope. Imagination plus grasp, multiplied by work, yields progress.

Yoakum plunged into his opportunity like a diver for pearls. In June, 1900, he was made president of the road, succeeding David B. Robinson, who retired because of ill health. Then Yoakum more than ever became a "Finnegan." Railroad men looked up the tracks, saw a disappearing cloud of dust, and remarked, "There goes Yoakum."

With breath-taking speed, he developed a system of 1,120 miles into one of 6,000. In 1905 it allied itself with the Rock Island Lines, and Mr. Yoakum was at once elected chairman of the executive committee of both the Chicago, Rock Island and Pacific Railway and the St. Louis and San Francisco Railroad Company. In 1909 he directed operations over 17,000 miles of road, then the largest aggregate railroad mileage in the world under single control.

The progress of Yoakum, railroad king and motive power for destiny, since that day is well known. His career is a fact that is stupefying to the superficial. But to the thinking "the reason why" is simple enough. We have the big fact; what is the creed that has produced it?

"Development; that is the word," says Yoakum. "I want to develop the resources of my country. I can think of no other means to this than work. I can do nothing else with pleasure. I can plan to do nothing else; I can enjoy doing nothing else."

It's the Same All Along the Line.

And all along the line it is the same. The kings beyond the seas have held their jobs because father did—till the people grew tired and whacked off a few heads and switched a dynasty or two just for luck, hoping things might be better.

EDWARD PAYSON RIPLEY.

THIS MASTER RAILROADER, PRESIDENT OF THE ATCHISON, TOPEKA, AND SANTA FE SINCE 1896, WAS ONCE A CLERK IN THE BOSTON OFFICE OF THE PENNSYLVANIA RAILROAD—HE HAS MADE A GREAT SYSTEM OUT OF TWO STREAKS OF RUST. GRADUATES FROM "THE RIPLEY SCHOOL" OF RAILROADING ARE KNOWN AS AMONG THE MOST BRILLIANT OPERATING OFFICIALS IN AMERICA.

From a photograph—copyrighted, 1910, by Moffett, Chicago.

Your American railroad king attains to the throne which is an ordinary swivel chair, because, through "Finneganizing," he has best learned how best through speed and thoroughness the people may be served.

And here is a thought which may serve to broaden out some who have reflected superficially on this subject. Remember that every president of a great American railway system is studying day and night for the betterment of his land and of all its people. And he can do this all the more sympathetically, for he is of the people.

His blood is not blue, as is the blood of a European potentate who thinks of the masses as a means of subsistence for the classes. His blood is *red*, a man's color, the hue that flows through all American veins.

The vision of these railroad kings is best indicated by reference to an utterance of Charles H. Markham, president of the Illinois Central. Markham went to work at twenty as a day laborer; he was an Atchison, Topeka and Santa Fe section hand. He became an agent; he was hoisted upward by that imperious boot of railway preferment that is almost savage in its brusk recognition of ability.

He electrified passenger traffic; he hustled the freight; he is now where and what he is. And now as always, is he thinking of himself? He is not; he is thinking of his country and its people.

Only in November, 1915, he contributed an article to the *Economic World* which attracted considerable attention. He wrote that the government should hold a conference of officials to deliberate regarding the military operation of railways in the event of war. The article dealt with this all-important phase of national preparedness in a way to engross the attention of the thoughtful.

Graduated from School of Hard Knocks.

No wonder these old campaigners can so well serve the interests of the people. They have graduated from the school of hard knocks, and their sheepskins qualify them understandingly to render this kind of service. Such a graduate is Henry U. Mudge, who assumed the presidency of the Denver and Rio Grande November 19, 1915.

The only "soft snap" that Henry U. Mudge ever enjoyed in the railroad game was in his first job. Mudge senior was in charge of a construction gang on the Santa Fe west of Larned, Kansas, and Mudge junior, sixteen, carried the water. And in his subsequent career on the Santa Fe and the Rock Island he seems to have joyfully reached for hard knocks—and every knock was a boost.

Where did J. E. Gorman begin, that Gorman who is now the chief executive officer for the receiver of the Chicago, Rock Island and Pacific? Well, he really began in Chicago December 3, 1863, but he began railroad work in August, 1877, as a car-number taker on the Chicago, Burlington and Quincy. Then he kept on climbing through a wide variety of jobs. This is the beauty of a real railroad career; a man sees a whole lot of horizons in his lifetime and every one of them wider.

B. F. Bush Began as a Rodman.

Benjamin Franklin Bush, who is slaving night and day to put Missouri Pacific on its feet, and who is succeeding at it, confesses that he didn't have to work quite so hard when he received his initial railroad experience in 1882 as a rodman on the Northern Pacific. But the gallop to the presidency of the Denver and Rio Grande Railroad, from which he retired last November, has appeared to yield Mr. Bush enjoyment.

Jule Murat Hannaford is president of the Northern Pacific. In June, 1866, he started as a clerk in the general freight office of the Vermont Central Railroad at St. Albans, Vermont. He was there six years. He has been elsewhere since. And the natives of St. Albans have kept track of him. It is said of him that he never let an opportunity slip. He caught it, wriggling, and taught it to eat from his hands.

What of George Walter Stevens, the president of the Chesapeake and Ohio—incidentally one of the foremost railroad men of the South? Back in 1864 obscure clerkships on the B. and O. did not satisfy him. So he kept on getting something better. Maybe to-day he would sit down and admire himself, comparing his present state with that of former years, but he hasn't time. He's still "Finneganizing."

They're all "Finneganizing" and pacing the country at the same inspiring and healthy exercise.

Years ago Horace Greeley, an immortal

JULIUS KRUTTSCHNITT.

HE ROSE FROM THE RANK AND FILE IN THE ENGINEERING DEPARTMENT. TECHNICAL TRAINING UNITED WITH ENERGY AND NATIVE ABILITY TO MAKE HIM CHAIRMAN OF THE SOUTHERN PACIFIC'S EXECUTIVE COMMITTEE.

of Park Row, New York, advised the young fellows to go West. So healthy was the nursery that the big interests of the sunrise slope are bringing graduates and the sons of graduates back East. Such a welcome hustler is Howard Elliott, now in charge of the New York, New Haven and Hartford. The year 1913 was a lucky one for the N. Y., N. H. and H.—with the accent on the "13." From the beginning Mr. Elliott invited publicity; the road can afford to stand its present variety. The "New York, New Haven and Hereafter" joke is taboo. There's now a real system with a real man at the head of it.

M. H. Smith's Rose-Strewn Path.

Let's glance at the path of roses, ha! ha! traversed by Milton H. Smith, president of the Louisville and Nashville Railroad since March 1, 1891. He began his service lolling in the floral arbors as operator and clerk in the superintendent's office of the Mississippi Central. He occupied blooming beds of ease on military railways during the war.

He dreamed of green meadows, and all that sort of thing, successively as freight-agent and general freight-agent of the L. and N., till he was called in 1878 to act in a similar capacity for the B. and O. He was general agent of the Pennsylvania for a year, when his visions hoisted him in turn through various grades to the presidency. Called back to head the L. and N., he is still wandering pleasantly through the pleasant places without a care (?).

Early in his career Charles E. Schaff cast about for the easiest, most care-free route through life. (Joke.) He hit upon the railroad business. So, starting from the bottom upward rather than the reverse grade affected by many of our otherwise bright young men, he had attained in 1893 the post of assistant to a railroad president. That wasn't enough to satisfy an ambition which he, at least, deemed reasonable, so he kept on ascending.

Finally—though really there isn't any "finally," and won't be till he finishes his task—he was hoisted from a vice-presidency of the Central lines into the presidency of the Missouri, Kansas and Texas. And looking back he doubtless congratulates himself upon the ease which attended his way. (Irony.)

Let's glance at Leonor Fresnel Loree, whose name sounds romantic enough to fit the lazy, lilting pages of the smoking rails. Born in Fulton City, Illinois, back in 1858, he has lost little time since. He entered the railroad business in 1877 as assistant in the engineer corps of the Pennsylvania Railroad. Then— But what is the use? It would take about all the type at hand to set up the railroad jobs that L. F. L. has held since then. Suffice it to say that, in spite of the dawdling imposed upon the man who elects to follow a railroad career, Mr. Loree is now president of the Delaware and Hudson and president in or director of thirty-four companies affiliated with or controlled by it, besides assisting in the directing of a "few million" other companies and organizations.

The name of Ripley is resounding enough, yet Edward Payson Ripley also dreamed in youth of the still waters of railroading (another joke!) not to mention the hissing steam. Happening along as a new, red, and yelling resident of Dorchester, Massachusetts, in 1845, he watched the engines roll by until 1869, when he took a job as clerk of the Boston office of the Pennsylvania Railroad. It may be that a few of his fellow clerks are still there if they have lived long enough. But Ripley isn't. He's been ripping for progress and the Atchison, Topeka and Santa Fe since he took the president's chair January 1, 1896.

American-Born Railroader Was Knighted.

Next gentleman, please! Allow us to introduce to your notice, one and all, Sir Thomas George Shaughnessy, who was born in Milwaukee October 6, 1853. He entered the railway service in 1869, in the purchasing department of the C., M. and St. P. Through successive steps of development, made possible by the welding of imagination and ability, he became president of the Canadian Pacific June 12, 1898.

Many honors have fallen to him during his span, including knighting at the hands of Queen Victoria in 1901. Still, in reading of his career, one must needs drop a salty tear of regret. What might he not have accomplished had Fate placed him in some realm of effort that required *work?* (Still another witticism.)

Oscar G. Murray entered railroading at Galveston in 1872 as ticket-agent for the Galveston, Houston and Henderson Rail-

way. Through the same easy route as is taken by all those men who scale the Alps of effort, he landed at the top in the councils of the Baltimore and Ohio, being its president for six years. Since January, 1910, he has been chairman of its board of directors.

Frank Trumbull, chairman of the board of directors of the Chesapeake and Ohio, and president of the Colorado Midland from 1890 to 1909, held various positions on the M., K. and T. and M. P. Railways. He was not satisfied with any of them. There are two kinds of dissatisfaction with a job. Trumbull's kind pays best.

Julius Kruttschnitt, among many other "easy snaps" (quip), the chairman of the executive committee of the Southern Pacific, came up from the engineering ranks. He studied railroad construction early, late, and the rest of the time, which is why he is where he is to-day.

A. J. Earling, president of the Chicago, Milwaukee and St. Paul, was not always thus. He was a telegrapher and train-despatcher for nine years, employed on that system. But he wouldn't "stay put." Hence, his widening horizons. He just kept going and going—and after a man gets that chronic habit there's just one thing will stop him. And we are not mentioning anything so sad within the limits of this article.

What about William J. Harahan, president of the Seaboard Air Line Railway? Was he lugged to the heights of railroad influence *via* any royal route to favor? Yes, he was not! He was the son of his daddy, to be sure—the late James T. Harahan, president of the Illinois Central.

President's Son Ran Errands.

And the fact that he was the president's son made it soft for him, you think? Well, it gave him a chance to work hard, for old James T. started him in the railway service as an office-boy when he was fourteen. That was in the Louisville and Nashville headquarters at Louisville. Before he was forty he was general manager of the Illinois Central under his father. And his will was sure and his will was fine, and now he's the "prexy" of the Seaboard Line.

So this is the record in tabloid of some of the best known of the railroad heads in America to-day. Enough has been given to indicate that romance—spelled in upper-case caps—holds sway on the rails. The men who have got to the top of the railroad game simply got the habit of speeding up. That habit is not so easy to acquire as that of slowing down, but it is a good deal more profitable.

Talk to any of these old campaigners—or if you cannot gain access to their closely guarded doors, talk to some of the "younger fry" who are following in the same route, and you will find that opportunity is just as fresh and fair to-day as ever it was. It is all in the will; it is all in the man.

Do You Need a College Diploma?

Is a college diploma an asset in the whilliking railroad game of to-day?

For an answer to this interesting question let's "phonograph" an interesting excerpt from an address made by Judge Lovett to the Yale men at New Haven, Connecticut, June 4, 1915. Said he to the undergraduates:

> A college diploma will not shield a man from any of the soot and grime and hardship incident to the railway service. Very few of the big men in railroad circles to-day ever had college diplomas. Only 13 of 46 executive heads of railroads in this country are college graduates. Out of 45 operating heads less than one-third have the sheepskin. Among traffic heads only 1 in every 8 went through college courses. Out of 41 accounting heads 35 never had a diploma.

Lawyers and civil and mechanical engineers were not included in the statistics given by Judge Lovett.

The eminent Texan, however, pointed out to the Yale men that, disregarding the present, the growing public nature of the railroad business, with the activities of governmental agencies for the regulation of railroads in all departments, more than ever call for recruits of liberal education and broad information.

This question aside, however, as always it will continue to be up to the man. Whether the sheepskin comes from a university of books or from the larger one of hearty thumps, the best-equipped graduate will get the job.

And a reading of this article should inspire any young railroad man in overalls and in earnest, and with the will to "Finneganize," to dig in and fit himself for the places higher up which shift and death are continually making vacant.

TORCH THAT LIGHTED THE WAY.

BY ERIC A. DARLING.

Fireman Travers Was in Bad with the Master Mechanic Until the Mulga Point Affair; But Then— !

AS a name, Weldon James Travers seemed indicative of estate and functions rather beyond the pretensions and appearance of the young fellow who dashed the title so boldly upon the Western Central pay-roll. The swooping signature was invariably emphasized on the pale blue sheet by thumb-and-finger-marks eloquent of coal and smutted waste, for a locomotive fireman tarries not to wash his hands before scrambling into the pay-car after his "dough."

The young man's chirography was singularly consonant with his physical aspect. He had long feet, long, well-shaped hands, a straight steel-post of body, a backward-springing spine and a round, yellowish, handsome head. His eyes were not large but disturbingly direct, and of a laughing, gleaming blue. With his quick, bold, erect air he had a soft, musical voice and was generally chary with his conversation.

One thing: "Weldy" liked to sing. That was his weakness, or his strength, as one's musical appreciation was inclined. Though his homeward route did not naturally lie by way of the residence of Master Mechanic Addington, nevertheless with the advent of Peggy Ellis, the M. M.'s niece, some subtle influence seemed irresistibly to draw Weldy's feet to make the little journey by that particular street, and it was noticeable that his vocal performance invariably reached its climax in the immediate region of the Addington home.

Weldy being engaged in firing passenger from Frank Forks to Denver and return, the schedule put him down at the "Forks" near midnight, with the result that the M. M. being awakened by the youth's soaring tenor, had frequent occasion to shift his iron-gray head upon his pillow and profane the darkness with protesting vocables. But always there was something of a wholly different nature exuding from one of the gable windows—something that sounded like the very soft clapping of little hands, tender, approving, sympathetic. Thus it soon became clear, at least to most of us, that Peggy and the crack fireman of the division were rather more than favorable to each other.

Peggy hailed from up Cheyenne way. Jack Ellis, her father, had been killed while pulling the Fast Mail in the memorable wreck of the Run Flood. Addington, too, came from the U. P. So Peggy was distinctly of railroad stock.

From early childhood dated her acquaintance with locomotives and locomotive folk. Throttles and balanced valves were as familiar to her as pins and needles. She had played in roundhouses and car-shops in her infancy, and still liked nothing better than to hang out of a cab window and feel the steel fabric roll and plunge as she watched the drivers dissolve into whirling cobwebs beneath her.

Yet Peggy was girlish and pretty, and could trim hats and play the piano. Old Addington had been heard to growl that he hadn't been able to decide which was the worse affliction — Peggy's playing or Weldy's warbling. However, the M. M. was proverbially ungracious to lovers.

Though several members of the force were languishing at Peggy, the stiffest obstruction impeding the flow of Weldy's inclination was Addington's obvious antipathy. Peggy, being without living parents and committed to her uncle's keeping, was hardly as free as the proverbial bird in the matter of mating. The M. M. mentally admitted that there were few men on the

Western Central who could keep so high and even a pressure of steam in an engine boiler under all conditions as could young Travers, but he did hate a man who sang high tenor and who loved.

Such a person could not but be weak. The M. M. himself possessed a voice like a bass drum with loose nails in it; he was deep-chested, big-headed, grizzly.

But back of his personal prejudice, sinking deeper roots into his mind, was a doubt of Fireman Travers's courage in times of peril. An ugly story had trickled up from the B. & Y., where Weldy began firing, to the effect that the young man had jumped when he should have stuck to his post, that his desertion of an engine in a crisis had cost a heavy toll of lives.

Weldy's explanation had been satisfactory to the majority, but some there were who doubted. The engineer had been killed and the locomotive smashed to scrap-iron, so certain of the fireman's statements could be neither verified nor disapproved. The B. & Y. people had been willing to give Weldy the benefit of the doubt and continue him in their employ, but Weldy, not relishing the cloud that o'erhung him, quit in wrathful disgust and presently came to the Western Central. That history was so nearly to repeat itself and in the episode of Mulga Point was to set Weldy in an almost parallel situation, is one of those strange workings of Providence that cannot be explained.

One morning in February the M. M. sent for Weldy and took him to task concerning the condition of the crown-sheet of the 1203, Weldy's engine. The young man's explanation, while satisfactory, did not soothe the master mechanic. If anything it increased his resentment. At heart he was railing about the love affair with Peggy, but his caustic words terminated in a voiced doubt as to Weldy's truthfulness and courage, and revived the old slur of the B. & Y. days.

Weldy's reply while brief was emphatic. He heaved the master mechanic into one of the roundhouse ash-pits. When the latter had scrambled out and secured a crank-pin wherewith to brain this extraordinary creature, Weldy was disappearing through the big door, erect as a ramrod and oozing contempt from every pore.

Calling for his time next morning, Weldy was surprised to hear the old man growl:

"Never allow my personal prejudices to interfere with company business. When you've injured the company in any way you'll get your time fast enough. Until then continue your present run."

Weldy gulped and softened.

"Mr. Addington," he began, "I guess I was kind of hasty—I'd like to—"

"Nothing of the kind. Drop it," snapped the old man. "When I want you I'll send for you. Good morning."

A little later Weldy leaned against a tank upright and howled. Certainly the M. M. was a funny fish.

But Addington did not erase himself. Weldy was notified in writing to forsake both his home and his niece. Peggy was hotly lectured, but her black eyes only twinkled the more as she kissed him and said that Weldy was "quite the nicest boy she knew."

In the headquarters building we chuckled. Truth, for once, was as attractive as fiction. Superintendent O'Rourke insisted on the immediate discharge of the insubordinate fireman. Addington made it a personal matter and refused pointblank. When O'Rourke became more insistent Addington himself threatened to leave. Thereupon the superintendent washed his hands of the business.

Though the house was forbidden to Weldy, he and Peggy managed to see each other on frequent occasions. Sometimes the girl rode with him on the 1203, sometimes she met him as he came in from his run, or again a horse and carriage crept slowly along a mountain road. And through it all the M. M. stormed and railed, but Peggy only kissed him and patted his bald spot lovingly.

The winter wore on and the weeks drew into March. Day by day a moist freshness breathed across the mountains. The peaks pushed back their silver hoods, shook out yellow locks of sunshine and smiled. Cañons echoed and reverberated with the cymbal shock of swollen streams, valleys grew velvet green as ocean hollows, miners went reluctantly into the bowels of the earth, railroad men wished they were farmers, and Weldy Travers felt a great hunger gnawing at his heart for Peggy.

With the vague blur of a whitish world of moonlight about them, the filmy mountain ranges sketched faintly across the valley, he confided this longing to her. A little coaxing, and her woman's heart yielded to his pleading insistence.

"Boy," she whispered tenderly, "you have the signal to go ahead. We'll be married just as soon as I can get my gown made."

So it was that Peggy soon after deadheaded over to Denver and ordered there the historic crêpe de Chine that was to play so important a part in the Mulga Point affair. A second visit and it had been fitted, and when the last stitch had been added Weldy was to bring it home.

Lulled into false security by Peggy's suddenly increased solicitude in his welfare, Addington suspected naught of the approaching ceremony. Peggy had decided to be married at the parsonage; Weldy had rented a little cottage; the furnishing of the latter had been postponed till after the matrimonial sunburst had been flashed upon the M. M.

The seventh of April found the bridal dress ready for transit. In the history of the Western Central the day is well remembered. A bad slide in the Bear Paw Cañon; a wreck, and Mulga Point—that would be hard to forget. Weldy carefully placed the green box containing the precious creation on the seat in the window-niche. To him the box was the living symbol of all future happiness; his eyes dwelt tenderly upon it.

Big, gray, corpulent "Pap" Thomas climbed slowly into the cab. One hand gripped over his heart as he labored for breath. His eye ran across the tremulous gage-needles.

"Son," he said, "I don't feel a bit well. I believe there's a hair a foot long grown inward from my chest and wrapped about my heart, and it's tightening up little by little, day by day. Going t'stop the pump some day."

The old engineer shook with mirthless laughter.

"Forget it, Pap!"

Weldy's tone was reassuring.

"You're the healthiest looking mortal I've ever seen. It's sure all right."

"Of course, son, of course; but still it feels like a strangling hair."

He climbed laboriously to his seat. From the fuel-deck Weldy could see the outline of his back and right shoulder.

Exactly on time the great compound, with a quickening series of crashing exhausts, moved out of the shed with her long string of coaches and made off toward the mountains through the falling dusk. She went purring, but with a hoarse depth of breath befitting her monstrous lungs; she rolled on her springs, but majestically and in keeping with the staying-power of her two hundred thousand pounds of close-knit steel.

She obeyed the throttle like a lamb, but her hunger for coal! Weldy was never at rest a moment. His hand seemed always reaching for the door-chain, and coal seemed forever spraying from his shovel into the hot, gaping mouth that ceaselessly growled and hissed with insatiable appetite. Following level rails southwestward through the first hour, she whipped the coaches along like a string of toys, but the lift of the foot-hills forced her to heavy breathing.

Weldy tore open his shirt-collar and rolled his sleeves elbow-high. It took a real master of the maul and shovel to keep breath in that prodigious chest.

Nine o'clock found them at Barn Butte, provincial division station at the base of the Cradle Range. A pusher hooked on and helped them to the summit. Eleven o'clock, and the 1203 was bellowing on the Western slope of the range, her steel skull lowered toward the Sandrill. Though the air of this soaring region was chill, Pap Thomas sat among his levers, hatless, coatless, both windows wide.

For the most part he sat poring on the twin streaks of steel that spun toward him through the broad glare of the headlight, but at times the bright rails melted into thin wires running through air and sinking under the weight of the engine. Then he would lift quick eyes to the stars o'erhead, draw a long breath and shake himself. Taking a train filled with humanity down the grades of the Cradle Range permitted not of vertigo or fantasies.

Matters were now easier for Weldy. Occasionally he jumped upon the fireman's seat and with his hand resting on the precious box looked also at the stars, and thought of Peggy. Everywhere the mountain tops were caught and swaying in a silver net. There was no visible moon; over the mountains brooded a vast silence through which the 1203 crashed heavily, falling toward the valley thirty miles below.

At Creastbreak, half-way down the range, an order caught them:

> Meet eastbound passenger Number Two at Mulga Point siding.

This was nine miles west of Bridge Sta-

tion, the regular meeting-point located on the Sandrill River at the base of the range. Crossing the stream the track followed the river up the cañon past Mulga siding, and wound over the base of Silver Mountain toward Grand Forks.

Leaving the Forks that night, Number Two was twenty-six minutes late, and had to be helped to the siding with an order. In the cab Sandy MacLean held the throttle, and with him was Addington, watching the working of a hoped-for improvement he had contrived in the grate-shaking apparatus. The M. M. was in a mood malefic. The shaker had not performed satisfactorily; the fireman in attempting to force it to effective service had jammed his hand cruelly. He was for the moment incapacitated, and the train being already behind time, MacLean descended to the fuel-deck while Addington took the valve levers. Driving an engine was familiar work to the M. M., and he brought Number Two down the line at a clip that made the coaches rock and squeak on the curves.

With his eyes set steadily on the forward point of the wedge of light swiftly splitting the gloom ahead, Addington whirled Number Two forward, knowing not that a dead man was at the throttle of the oncoming 1203. The master mechanic purposed to arrive in Denver "on time."

And Thomas—no one on the express knew! He brought his train down the range to the Sandrill and across to Bridge Station in good order, though a trifle fast. He shut off a little late and ran past the station, stopping at the water-tank, which was queer. When they pulled out he gave the 1203 her head so suddenly that persons on the train who chanced to be standing were jerked off their feet.

That was the last time Pap opened a valve. His broad left hand remained on the lever, gripped like a vise, and he lurched slowly forward with his chin on his breast, staring at his feet and swaying a little, the frost of death creeping chillily into his eyes.

Weldy was busy. From Bridge Station to the Forks the 1203 would consume coal like an ore-crusher. She went up the dark cañon along the Sandrill with her exhausts beating a steady roar. What was the use of Pap making a run for Silver Mountain, Weldy asked himself, when they had to stop at the siding? He glanced at the outline of the engineer's back and wondered. Yet surely the old man knew his business.

They swept by the vast gash in the mountain's base where lay the Eagle Cove Mine, and onward through cuts and over fills, the coaches rolling in the wake of the rushing machine. The hoarse buzz in the engine's throat deepened as she turned slightly from the river and began to plant her whirling feet on the base of Silver Mountain.

Weldy, pounding coal busily, his brain aswim with thoughts of Peggy and the portentous morrow, gave small heed to his whereabouts until, with a shock that nipped his hair-roots icily, he saw that they had passed the siding and were rounding Mulga Point.

Instantly he leaped to the gangway, and, swinging outward by the rods, threw quick glances about. The siding was vanishing eastward! At that the conductor's bell-cord wrenched sharply, giving the stop signal. Gasping with horror, Weldy sprang across the fuel deck and up the steps to Pap's seat. He snatched the engineer roughly by the shoulders.

"Pap! What's the big idea? You've passed—"

The gray head rolled back against the fireman's shoulder, the unseeing, frosty eyes close to the young man's face.

For a moment the fireman stared down into the unearthly countenance, his faculties frozen by the sight. Then he lunged at the throttle. The dead man's hand seemed shrunk upon the lever like a claw of chilled iron. The youth laid hold of it and wrenched it away; then his hand flew back to the lever to shut off steam; but in that instant, as if stretching forth his hand had conjured destruction, the 1203 crashed and leaped and rent herself in fragments. Weldy felt himself strike the fuel-deck; fire gushed from his eyes; a leg snapped; then boulders, logs, and mud hurtled over him.

Next moment he was thrashed upon the earth, the green box crushed beneath his chest; things, he knew not what, were piled upon him. He felt flattened, pinioned, smothering; he must have air or perish. With a Titanic heave and wrench that seemed to tear the muscles from his bones he got his head above the ruck of stuff and drew himself out.

He reached in and pulled the crushed box after him. Even in that moment he thought of Peggy's gown. What would she think if he should lose it?

They were in an earth-slide that had

rolled down Mulga Point. The 1203 had driven almost through it, and she now lay upon her back with her drivers in the air. The train, stretched in the mucky stuff, twisted and toppled grotesquely; the coaches rang with cries for aid. The lights still burned in some of the coaches; perhaps the red lamps were aglow at the rear; but evidently the conductor and brakemen were struggling somewhere in the half-buried wreck.

A flash of mental lightning blazed through the fireman's brain. In three or four minutes Number Two, an inconceivable weight of iron and wood and humanity, would rush down Mulga Grade and drive into the hapless mass in the cut!

He seemed suddenly baptized in fire. He threw a quick glance about him; there was no lantern nor means of signaling at hand. As a swimmer blows back engulfing waters with long breaths and fights toward some point where life waits for a moment beckoning, so he began crawling madly ahead along the track, dragging the torn box and his dangling leg after him. If he could but reach the end of the first bend, some three or four hundred feet distant! Beyond that there was a little stretch of straight track, and, could he set the wedding gown on fire MacLean might possibly see the signal in time to get his train under control before he struck the helpless coaches in the cut.

Wildly he scrambled forward. Back of him there came yelling and turmoil; away in front a mighty, jostling thing was roaring down the grade; but he heard nothing save his breath gasping, pulses pounding and his broken leg rasping. The flimsy box fell into pieces; he flung the gown across his shoulder and crawled onward over the ties. Though it seemed eternity itself, in a few minutes he had gained the end of the curve.

He looked up and saw the headlight of Number Two a scant half-mile away; he glanced back at the wrecked express; it seemed fearfully near. But he could do no better.

With trembling hand he tore some matches from the pocket of his flannel shirt and raked the bunch along the ties. Drawing the gown to him he thrust the blaze against the lace. Flames leaped back in answer as from ignited corn-silk. The cobweb fabric writhed and flashed. Seizing it in both hands, he rose on the knee of his uninjured limb and waved it wildly to and fro above his head.

The flames burned him, the curling laces trickled down in smoking tendrils that seared like melting lead, but he felt nothing, heard nothing, saw nothing save the gleam of the approaching headlight. Back and forth he lashed the blazing gown, yelling—screaming his warning through the night.

Piled high against the western stars the mountain masses seemed to sway, the headlight of the oncoming train rocked and dipped fantastically; then to the young fellow on the track it began to whirl in vast circles like a stupendous coal of fire, till with a parting wink it snapped blue-black and all was darkness. In his brain a dying impulse wavered momentarily, a feeling that he was still on knees flinging the flaming robe back and forth above his head. In truth he lay face downward across the rails, his scorched fingers impotently grasping at the dirt.

On passenger Number Two fright and commotion had fallen simultaneously; in the gloom the iron way had suddenly spouted leaping flames. The fire was white, but its motion spelled danger. The engine's chime shrieked once like a bursting trumpet; the engineer jammed in the throttle; air leaped through pipes and the brake-shoes jammed their gritty soles against the flying wheels until the rails flickered with spattering fire; passengers smote forward and slithered across coach floors; draw-heads battered and split, and from end to end the train surged and snarled and shook.

Addington, thrown forward to his knees, stared ahead with grizzly face suddenly gone white; MacLean leaped to the gangway ready to jump; the fireman forgot his mangled hand and lowered himself to the step, poised to spring. All seemed accomplished in a breath.

The train, skating in fire, quivered and jostled down toward the sputtering wedding gown and the limp form sprawled across the rails. It approached close, almost touched them, then with a tremor and backward heave of its whole fabric stopped and was quiet.

MacLean, lantern in hand, was first to reach the muddy, muffled figure, but the master mechanic was close on his heels, and his were the arms to encircle the prone form. He turned the face to the light; it was streaked with blood and smeared with wet clay, the blond hair snarled and awry. Addington's lips worked in his beard. A brake-

man and a postal clerk from the express came up, panting and striving to articulate.

"What's happened?" snapped Addington bruskly.

"We're in a slide—a bad one. Lots of folks bruised and hurt, I guess; don't think anybody's killed," said the brakeman.

"I stumbled over Pap Thomas by the engine. I'm afraid Pap has obeyed 'the big order,'" said the postal clerk.

His face showed pallid in the glare of the headlight.

Addington was tenderly wiping Weldy's face with his handkerchief, his mouth still mumbling in his beard. Suddenly the eyes in the soiled face opened, widened wildly, while the figure twisted and struggled fiercely.

"Stop her! Hold Number Two!" the muddy lips babbled. "Shut her off! For Heaven's sake choke her, MacLean! Plug her! Throw her over—throw her over! Give her—"

"There, there, old man!"

Addington stroked the young fellow's hair back from his forehead, and strove to comfort him.

"Number Two's all right. MacLean is right here. I was at the throttle myself and got your signal. See—the train's right on the track beside you here."

Weldy looked around at the men oddly, up at the front of Number Two's engine, then sank limply back and began to laugh.

"Glory!" he said weakly. "Pick the hymn and I'll sing tenor! Say, handle me with care; I think my leg's busted. Right side up, please. Say, I had to burn Peggy's dress; couldn't help it. But I'm scared. Gee! She won't do a thing to me!" His jaw clamped rigidly as the men began to lift him.

"Dress? Peggy's dress?" queried Addington in bewilderment. "Where did you—what do you mean, boy?"

"Wedding dress," muttered Weldy through set teeth.

"You set it on fire?"

"Burned it all up," grated Weldy.

The master mechanic was silent a moment.

"I see," he said. "Well, I'll buy her the next one myself. Another thing, son; when the 1203 has been put through the shop you can have her."

"The engine or the girl?"

"Both!" And the torch had lighted the way.

LAYIN' TRACK.

BY GORDON SEAGROVE.

RAP, rap, rap, clang the sledges,
Sounding ringing songs on the rail;
Flap, flap, flap from the hedges,
Scatter singing quarries of quail;
"Work, man, work!" bawl the bosses.
"Put a little steam in yer back!"
Whoosh, w-h-o-o-o-s-h—whoosh, go the shovels—
It's spring, and they're layin' down track.

"PULL, boy, pull!" shout the drivers,
Hauling golden sand to the grade.
"Hey, lad! Here! Bring us water!"
This from Paolo with his spade.
Up, down, up, bend their figures,
Straining in dungarees of black.
Hark to their lilts as they labor—
It's spring, and they're layin' down track.

FOILING HIGH-VOLTAGE DEATH

HERE are three of the eight hundred men or more who were employed in electrifying the twenty-mile suburban section of the Pennsylvania's main line from Philadelphia to Paoli, Pennsylvania. Although 2,295 separate movements of trains and engines occur daily at the most congested point, nevertheless the workmen strung six hundred miles of wire without interrupting traffic. Not a life was lost from electric shock. To render the work absolutely safe to builders and passengers alike, a wholly new automatic block-signal system was invented, a new form of electric motor devised, and a special system of overhead trolley construction planned. Steel cars act like lightning-rods in case wires break, and a fraction of a second later the current is automatically cut off.

From the standpoint of speed and safety as well as of construction and equipment, this bit of electrification is regarded by experts as the most up-to-date in the world.

TROUBLESOME CAR-WHEELS.

In Recent Years Weight of Axle Has Increased 149 Per Cent and That of Rail Has Doubled While Wheel Is But 38 Per Cent Heavier.

COLLAPSES COST $1,000,000 ANNUALLY.

Property Loss Is 41 Per Cent of Total Loss from All Derailments—In Ten Years Poor Wheels Have Been Responsible for 151 Deaths—97 Per Cent of All Wheels Are Made of Cast Iron—Solid-Steel Type Is 4.7 to 11 Times Stronger.

BY CHARLES FREDERICK CARTER,

Author of "When Railroads Were New."

ONE of these fine days eighteen million car-wheels now employed on American railroads are going to find themselves out of a job. Although they have been the objects of ever increasing care, being inspected in these latter days by two or three different men at every division point, and by trainmen at every opportunity between terminals; although they have been honored by the Master Car-Builders' Association by the appointment of a permanent committee to study their needs, these eighteen million car-wheels have not behaved as those who paid good money for them felt they had a right to expect.

On the contrary, the shortcomings of the car-wheel have developed one of the most vexatious problems with which railroad men have to deal. So serious had the car-wheel problem become in 1913 that on July 1 of that year Secretary Redfield directed the United States Bureau of Standards to make an investigation thereof. J. E. Howard, engineer-physicist of the Bureau, was thereupon assigned to the task.

Meanwhile, the United States Steel Corporation appears to have found the solution of the car-wheel problem, and is doing its honest best to place it at the disposal of the railroads.

34 % of Derailments Due to Poor Wheels.

That Secretary Redfield's action was not without provocation is shown by Accident Bulletin No. 52 of the Interstate Commerce Commission, setting forth the fact that more than 34 per cent of the 37,546 derailments on American railroads in the thirteen years ending June 30, 1914, was due to defective wheels. The property loss in these accidents caused by defective wheels was $12,506,766, or 41 per cent of the total loss in all derailments. In other words, the accidents caused by wheels were more serious than others. And this is not all of the story. In ten years 151 persons were killed in wrecks caused by broken wheels, while 2,471 others were injured.

A few characteristic examples may serve to illustrate the innate depravity of the car-wheel. Most curious was the coincidence of two bad wrecks at the same spot within ten days due to broken wheels. As a passenger-train was approaching a Wisconsin

stop, on the night of January 30, 1915, a middle wheel in a six-wheel truck under the rear end of a baggage-car began to go to pieces, scattering fragments for nearly half a mile. The pounding of the mutilated remains finally broke a rail and put the train ashore near the station, injuring twenty-one passengers.

The inspector sent by the Interstate Commerce Commission to investigate found that the wheel that failed was a built-up affair, consisting of an iron spider in the center with two steel cheek-plates connecting the spider with the steel tire. And the inspector found other wheels in the same train in nearly as bad condition as was the one that burst just before the accident.

Ten days later a freight-train of seventy-five cars was approaching the same stop when a wheel under the tenth car broke, and pounded along on the ties until it reached the frog at the house-track, where it ditched the train, stacking twenty-eight cars up around the station building and setting fire to the lot. Eleven cars with their contents and the station were destroyed. Yet that car had been inspected by two car-inspectors, two oilers, and a safety-appliance man at Chicago a few hours before, and also by a trainman an hour before the accident!

When the Interstate Commerce Commission inspector came around he found conditions so characteristic of the eighteen million that they are worth recording here. Three of the wheels on the truck that failed were defective, having flat spots, broken flanges and the like. The wheels on the same axles were not mates, but were of different sizes, causing the truck to run in an oblique direction. As if that weren't enough, the axles had a tendency to drift to the right, so that the flanges on the right-hand wheels were worn vertical.

Finally, there were grooves eleven inches long and from five-sixteenths to three-eighths of an inch deep in the treads. The rules of the Master Car-Builders' Association provide that a wheel with a flat spot more than two and a half inches long must be condemned and removed from service.

When Accidents Go by Threes.

All railroad men know that accidents go by threes. So the management was not surprised when a train was ditched by a broken flange soon after the other two wrecks, injuring twenty passengers.

Two days after this wreck a Missouri Pacific freight-train was piled in the ditch by a broken wheel near a Nebraska city. Some oil-tank cars set the mass afire, burning up seventeen cars and five tramps who were stealing a ride. The heat was so terrific that two carloads of silver bullion were melted.

A broken wheel derailed a box-car at a Pennsylvania station on March 26, 1915, throwing it against a passenger-train on the opposite track. Two coaches were badly damaged and two passengers injured. The same cause wrecked a fast freight near another Pennsylvania station on September 23, 1915, destroying seventeen cars and killing a trainman.

Fate Is against Chilled-Iron Type.

Before going farther it should be explained that the sweeping condemnation of the car-wheel in the foregoing applies only to the 97 per cent made of chilled iron; that is, cast iron with chilled treads. Built-up wheels, constituting a part of the remaining 3 per cent, are under strong suspicion, but the solid steel wheel can prove an alibi.

It is no more than just to say that the chilled-iron wheel has not been given a fair chance. For, while the capacity of the average car has been increased 400 per cent in recent years, the weight of the axle 149 per cent, and the weight of the rail 100 per cent, the weight of the car-wheel has been increased only 38 per cent. Yet the wheel is the foundation of the whole transportation structure. What would be thought of a builder who erected a sky-scraper on a foundation intended to bear the weight of a henhouse?

The further fact must be borne in mind that the rated capacity of a car is by no means the measure of the weight it carries, for it has become the established practise to pile on a 10 per cent overload on the new large-capacity cars, particularly in hauling coal and ore.

It must also be borne in mind that wheels are subjected to tremendous strains in running. The insistent demand for cheap wheels precludes the possibility of accuracy in manufacture. As a result it is by no means uncommon to find the two wheels on the same axle differing in diameter an eighth of an inch, or even more. This means that the larger wheel in going one mile has to travel six feet three inches

farther than its mate; or, rather, that it has to slip that much. In traveling thirty thousand miles the larger wheel would have to slip sixty-six miles.

This not only causes an enormous loss of power, but it also imposes tremendous wear and tear on the track and especially on the flanges, which are the weakest parts of the wheel. Another cause of excessive flange-wear is the improper alinement of trucks. Car-trucks are roughly constructed, often causing wheels to run ahead of their mates on the same axles, thus grinding the flanges. No wonder that sixty per cent of wheel failures are due to broken flanges!

The tremendous braking-power necessary for handling the immense trains of today is also hard on wheels. Continuous application of the brakes in descending a long and heavy grade heats the wheels to very high temperatures. Sudden cooling when the brakes are released develops cracks. Brake-burned wheels are common on roads having heavy grades.

If the wheels are skidded by a too heavy application of the brakes, the temperature developed sometimes rises to 3,000 degrees, which is the melting-point of cast iron. The result is a " shell-out " later on in the little spot that was in contact with the rail, due to the disintegration of the metal.

Curves are hard on flanges, too; for the lateral thrust of a heavy car is very great. George L. Fowler, a consulting mechanical engineer, who has made extensive studies of car-wheel problems, installed apparatus in the main line of a busy railroad to measure this lateral thrust. On a 6-degree curve, superelevated for a speed of 24.4 miles an hour, the lateral thrust of wheels under freight-cars was from 5,375 to 6,000 pounds; under sleeping-cars, 7,125 to 12,250 pounds.

Curves Put Tremendous Strain on Flanges.

On an 8-degree curve the lateral thrust of freight-car wheels was 4,750 to 33,200 pounds; of sleeping-cars 9,875 to 36,400 pounds. The lateral thrust of sleepers was two to three times that of locomotives. Locomotives running backward developed 50 per cent greater lateral thrust than when running forward. But, then, all railroad men know that an engine running backward is much more likely to climb the rail than one going ahead.

The chilled-iron wheel had to make its own way in the world without the benefits of a scientific education on the part of its manufacturers until after it had become firmly established. And even at that it was the cheapness of the chilled-iron car-wheel that made the wonderful development of the American railroad possible. No matter what else inventive genius might have done for the permanent way, the locomotive, or the rolling-stock, all would have gone for naught but for the chilled-iron wheel. No substitute was mechanically or financially possible.

Car-Wheel Antedates Steam Railroad.

The car-wheel is much older than the steam railroad. Many a year before Richard Trevithick produced his masterpiece, the locomotive " Puffing Billy," rude tramroads were used in the coal-mining regions of England and Wales. Although history is a bit hazy about it, the first wheels under the tiny coal-cars on these tramroads are understood to have been made of wood. The cast-iron wheel was introduced late in the eighteenth century, and it was not substantially improved until the American inventor got at it.

At first the flange was put upon the rail instead of upon the wheel. Then some genius whose name history has not troubled to preserve discovered that the better way was to put the flange on the wheel.

Cars on the Quincy granite road, the first attempt at railroad-building in America, were high enough to allow blocks of granite to be suspended beneath. The car-wheels were the usual wooden wagon-wheels, six feet in diameter, with iron tires. The flanges were circlets of iron bolted to the felloes.

The first car built for the Baltimore and Ohio, which was the real pioneer railroad, is understood to have had wooden wheels; but here again history leaves details to the imagination.

But the next cars were built by that indefatigable pioneer who did so much to hammer the first nebulous ideas about railroads into practical shape—Ross Winans. The builders of the Baltimore and Ohio had to send a commission to England to find out what a railroad was like. From their meager descriptions Winans developed a car with iron wheels with the flanges running outside of the rail.

At first there were grave doubts of the possibility of making any railroad-track safe. Therefore the Baltimore and Ohio

commissioned J. Knight, one of the leaders in the first generation of railroad engineers, to study the problems involved. In an elaborate report, Knight reached the conclusion that 4 feet 9¼ inches was the correct gage; that car-wheels should be thirty inches in diameter, and they should have a flat tread; and that the connection between the tread and the flange should be coned.

Without going to the trouble of doing so much figuring, Winans produced a practicable car, including the four-wheeled truck and the iron wheel with coned tread. After his first experiment, Winans changed the flange from the outside to the inside. According to one account he invented the chilled-iron wheel.

At all events the chilled-iron wheel made its appearance very early in the proceedings. A description of the railroad published in 1831 says:

> The railway cars, or carriages, are fitted with iron wheels which, being cast in a chill, afford surfaces like hardened steel. Each wheel has a flange, or protecting rim, of about one inch in depth (the Master Car-Builders' standard to-day) which runs below the rail-plates on the inner side of the tracks, and which effectually prevents the wheels from leaving the rails.

Washburn's Patent Marked New Era.

For the next twenty years the development of the wheel was a catch-as-catch-can scramble, with the usual proportion of silly-season devices. The one-piece, single-plate cast wheel was patented in 1838 and was immediately taken up by the wheel-makers. Numerous other patents were issued, of little value, or none at all, until October 8, 1850, when Patent No. 7,710 was issued to N. Washburn. This marked an era in the development of transportation.

The Washburn wheel consisted of a double plate joined together to form a single plate in the outer third of the web, leaving a hollow ring encircling the hub, the back plate being reenforced by brackets, or ribs. In a general way this is the form of construction of the chilled-iron wheel to-day.

But the car-wheel had a long, hard road to travel before it became standardized. Wheels used on various railroads in the fifties were from 30 to 42 inches in diameter, while the gage varied from 3 feet to 6 feet, and flanges were from one to two inches thick. Although the Master Car-Builders' Association was organized in 1865, it was not until 1881 that the Association agreed upon a standard for car-wheels.

For freight-cars the diameter was fixed at 33 inches, which is still the standard, and 42 inches was agreed upon for passenger equipment. Now the usual diameter is 36 inches. At the Centennial Exposition car-wheels were exhibited 24, 28, 30, 33, 36, 39, and 42 inches in diameter.

Parts Came in Dozens of Varieties.

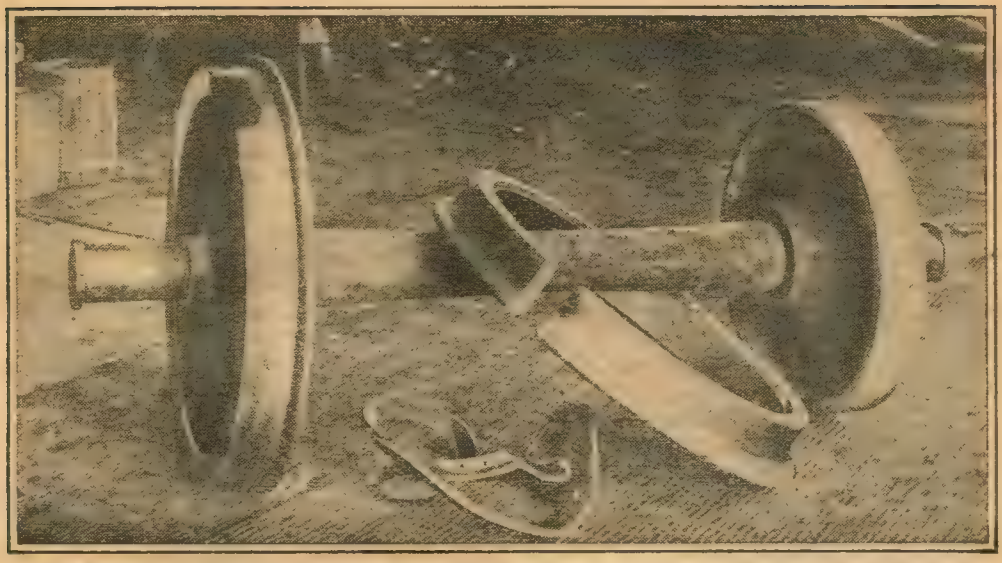
Other details varied so much that in 1882 the master car-builder of the New York Central reported that he carried at the Buffalo shops 56 different varieties of axles and 58 varieties of journal-boxes for repairs and replacements. And even this large assortment was not enough. Sometimes a foreign car broke down on the New York Central lines that could not be repaired from parts in stock, and the master car-builder had to put in a special order for the needed equipment.

The manufacture of car-wheels early became an important industry. According to the census of 1860, seventeen establishments distributed through seven States produced in that year 142,000 car-wheels valued at $2,083,350, or an average of $14.67 a wheel.

In the golden era of the railroad, the latter part of the nineteenth century, the chilled-iron wheel was nearly universally used for freight and passenger equipment and engine-truck and tender-wheels. Under the light cars of those days chilled-iron wheels lasted so long that no man knew, or cared, what their average life was. The wheels lasted until the cars wore out and were condemned; then they were transferred under other cars, where they trundled along their eventful way until the original wheel records were lost or forgotten and the clerk who entered them had died or had left the railroad.

Simple to Make 'Em in the Old Days.

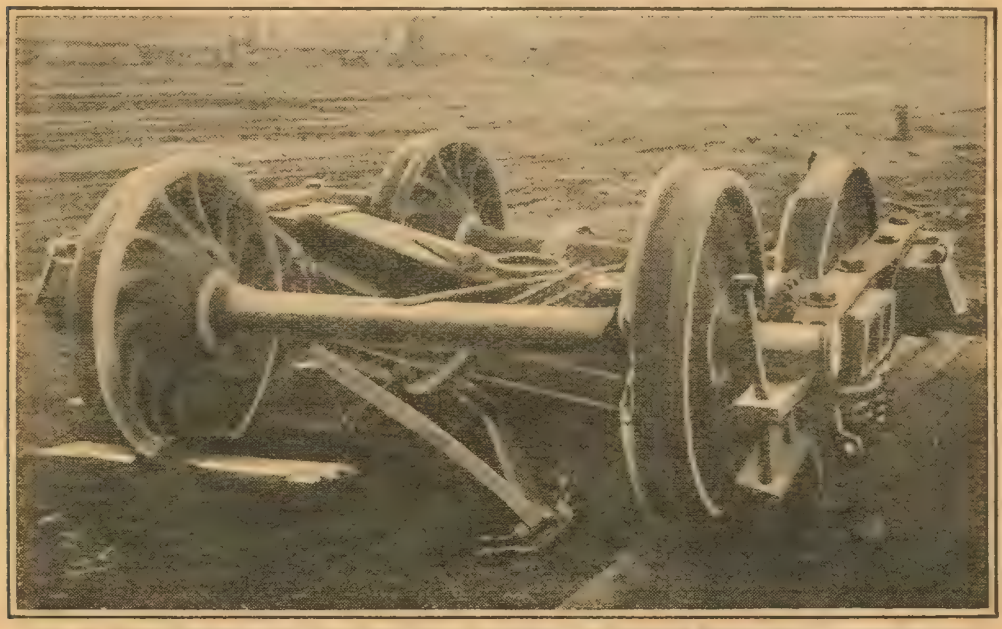
Car-wheel manufacture in those days was a delightfully simple matter. The manufacturer knew nothing of chemistry or metallurgy, and, what is more, he didn't want to know. He simply bought certain kinds of iron, chucked it into a cupola, and when it had melted poured it into molds, the outer part of which consisted of a cast-



THIS WHEEL KILLED ONE PERSON AND INJURED SEVENTY OTHERS. THE DEED WAS DONE BY PUTTING A PASSENGER-TRAIN IN THE DITCH WHILE RUNNING FIFTY-FIVE MILES AN HOUR. THIS STEEL-TIRED WHEEL HAD RUN 111,113 MILES, MAKING APPROXIMATELY 60,000,000 REVOLUTIONS BEFORE A HEAT-CRACK, CAUSED BY BRAKE-HEATING, SPLIT IT ASSUNDER. IT WAS IN THE FORWARD TRUCK OF THE BAGGAGE-CAR.

iron ring. The molten metal coming into contact with this cold iron was "chilled"; that is to say, it cooled more quickly than did the part of the cast which was formed in the sand.

The result of this chill is that the por-



ONE OF THESE WHEELS GOT OFF THE IRON, STACKING UP TWENTY-EIGHT CARS. INVESTIGATION REVEALED THAT THREE OF THE WHEELS ON THIS TRUCK HAD BROKEN FLANGES, WHILE THE RIGHT-HAND PAIR ALSO SHOWED WORN SPOTS ELEVEN INCHES LONG ON THE TREADS. WHEELS ON SAME AXLES WERE OF DIFFERENT SIZES, CAUSING THE TRUCK TO RUN IN AN OBLIQUE DIRECTION, WHILE THE AXLES HAD A TENDENCY TO DRIFT TO THE RIGHT, SO THAT THE FLANGES ON THE RIGHT-HAND WHEELS WERE WORN VERTICAL. YET THIS CAR HAD JUST PASSED SIX INSPECTIONS!

tion of the casting next to the metallic mold becomes white, crystalline, and brittle, and very hard, due to the fact that the carbon in the iron is all retained in the combined form. The interior of the casting, in contact with the sand mold, remains gray, and more or less tough and fibrous, because the slower cooling allows the carbon to separate in part as free carbon or graphite.

The depth of the chill is from a quarter to three-quarters of an inch, constituting a tire of extreme hardness on the softer part of the wheel. Not all irons possess this property of chilling.

Everything went well for the chilled-iron wheel so long as cars had a nominal capacity of ten tons and actually carried an average of four tons; but when the railroads had so far improved their tracks that they could count on heavy trains sticking to the right-of-way, and so felt warranted in increasing the speed of trains and the capacity of cars, wheels began to go to pieces at inconvenient times and places with uncomfortable frequency. The Master Car-Builders' recommended the wheel-makers to improve their product and the railroads to pay higher prices to make that improvement possible, but this excellent advice was not followed.

Nevertheless, the wheel-makers abandoned the rule-of-thumb method and engaged metallurgists to superintend the process of manufacture. Every car-load of iron purchased is now given a chemical analysis and piled in the stockyard according to that analysis.

Charges for the cupola are made up to give the exact carbon and silicon contents desired. A test piece is cast from each pouring. If the product is not exactly up to standard, all the wheels from that pouring must be broken up.

Highbrows Do the Manufacturing Now.

If the chill is too deep ferro-silicon is added, which liberates part of the carbon and increases the silicon content, thus introducing a softening element that reduces the chill. If the chill is not deep enough, a piece of steel rail is added to the ladle, lowering the silicon content and adding manganese, a hardening element. Careful watch must be maintained over the fuel used, the rate of melting, and the temperature of pouring, for all these things affect the finished product.

Two wheels out of every hundred are laid aside to be tested. One wheel is tested by dropping a two-hundred-pound weight upon the hub from a height of nine feet, the number of blows depending upon the weight of the wheel. If a crack develops before the prescribed number of blows the lot is condemned. The second wheel is laid on sand and a channel an inch and a quarter wide and four inches deep is molded around it. Into this molten iron is poured to imitate the effects of heating from long-continued brake-pressure. If the wheel cracks in less than two minutes the whole lot must forthwith be condemned.

The chilled-iron car-wheel reached maturity in 1886, when the Master Car-Builders' Association adopted the present standards, which prescribe a diameter of 33 inches for freight equipment, with an over-all width at the tread of 5⅝ inches. The taper of the tread is one in twenty. The flange is 1 inch high, with a gothic crown and a thickness of 1¼ inches at the root-curve. The hub measures 10 inches across the face, and the bore is 7 inches deep.

The web is ⅞ to 1 inch thick. The weight varies all the way from 625 to 725 pounds.

10,000 Miles of Wheels.

Now the manufacturers of chilled-iron car-wheels have a national organization of their own, with headquarters in Chicago, to safeguard their mutual interests, and particularly to protect the chilled-iron wheel from aspersions upon its character. The tireless secretary of the association has figured out that, including street-cars, there are twenty million chilled-iron car-wheels in the United States; that if they were stood on a single rail, touching each other, they would make a string ten thousand miles long; or if piled on top of each other in a single column, the aforesaid column would be 2,500 miles high; that the original cost of these wheels was $162,500,000; that their scrap value is $97,500,000, making the net cost to the railroads $65,000,000.

Thus, counting the average life of a wheel as ten years, the annual cost of car-wheels to the railroads of the United States is $6,500,000. If the railroads were to adopt a different material, even at as little cost as one cent a pound above the price

of chilled-iron wheels, it would add $130,000,000 to their expenses, which, capitalized at 5 per cent, would amount to $6,500,000 annually, or enough to pay the total bill for chilled-iron wheels.

Steel-Tired Wheels Prevalent in England.

These things would be unanswerable if there were nothing to be said in reply. But as soon as the shortcomings of the chilled-iron wheel became manifest the search for a substitute began. These earlier attempts were all concerned with the wheel built up with steel tires, almost every conceivable shape and combination of shapes to connect the hub with the tire being tried. Spokes of cast iron, of cast steel, cast hubs with steel face-plates and brackets—all were heralded with a flourish of trumpets, but failed to displace the chilled-iron wheel to any great extent in the United States, though steel-tired wheels are practically universal in England, and are extensively used on the continent of Europe.

Steel tires can be turned true, and they can be put back in the lathe and turned when a channel wears in the tread. On the Pennsylvania, where a good many steel-tired wheels are used under passenger equipment, the new tires are 2 inches thick, thus making allowance for several turnings.

Richard N. Allen even made car-wheels out of paper, and succeeded in having the Pullman Company adopt them as standard for some years. Allen was laughed at when he first proposed, in 1869, to make car-wheels of paper. It was with the greatest difficulty that he obtained the privilege of trying a set of his wheels under a wood car for six months.

Paper Car-Wheels Had Their Vogue.

Then, in 1871, he obtained a trial order for 100 wheels from the Pullman Company. A few years later the Allen Car-Wheel Company was turning out 17,000 wheels a year. The body of the wheels was made of calendered ryestraw paper. From 120 to 160 of these sheets, stuck together with flour-paste, were subjected to hydraulic pressure of 500 tons, then cut into shape to fit between a steel hub and steel tire.

The paper wheels were thought to ride more smoothly and make less noise than ordinary wheels, a great virtue for sleeping-cars. But their vogue did not last long. Paper wheels have now disappeared.

Other inventors with more faith than judgment even tried to introduce car-wheels made with layers of vulcanized rubber and of hemp under the tires. They were just about as successful as might have been expected.

The first step in the right direction to develop a suitable wheel for the modern car was taken in 1854, when Hartson patented a machine for rolling and forging wrought-iron car-wheels from disks. In 1863 Vanstone patented a similar machine. Henry W. Fowler, of Chicago, also tried to develop a forged wheel, taking out a number of patents for machinery, the last being in 1902. Otto Nioggemeier, of Sharpsburg, Pennsylvania, invented a machine for rolling wheels from steel disks; Sam T. Hughes, of Canonsburg, Pennsylvania, would roll them from blooms; Theodore W. Bean from ingots. All these attempts proved futile.

Schoen, Father of the Steel Wheel.

It was not until Charles T. Schoen, who invented the pressed-steel car, and as a consequence is now referred to by "Who's Who" as a capitalist, turned his attention to the problem that the right solution was found. Schoen proposed to build steel cars of a hundred thousand pounds capacity; and in order to do it, he had to have better wheels for a foundation than were then available. In 1898 he set to work with Henrik von Loss, a consulting mechanical engineer of Philadelphia, to produce a forged steel wheel.

The first patent was taken out by the two in 1902, for a machine for rolling wheels from circular ingots. The wheel itself, as an article of manufacture, was covered by a patent dated December 8, 1903. The product was described as a one-piece forged and rolled steel wheel, having the hub and approximately one-fourth of the adjacent web forged and the axle-hole punched, and the rest of the web and rim rolled to a finish.

The Schoen Steel Wheel Company was organized May 11, 1903. In 1904, 1,126 wheels were sold. Next year the Pennsylvania Railroad ordered 3,800 wheels, to be tried out in the freight-service. Total sales that year were 22,332 wheels. Absolute assurance that the forged steel wheel was destined to be a great success was given when Andrew Carnegie annexed the Schoen Steel Wheel Company; for Andrew early in life established a reputation for knowing a

good thing when he saw it. In the natural course of events, the United States Steel Corporation inherited the Schoen wheel works and increased their capacity greatly. For once the forged steel wheel got started, there was no stopping it. In 1908 the output was 57,000 wheels; the next year the production jumped to 269,000, and it has been growing steadily ever since.

Are Forged at a Single Heat.

As a spectacle, the forging of a steel car-wheel is well worth the price of admission. The whole process is performed at a single heat. The molten steel is poured from the open-hearth furnace into ingot molds, which are stripped off by an electric crane as soon as the contents are solidified enough to stand alone.

The hot ingot is immediately yanked up by another crane and started through a set of rolls which squeeze it into a cylindrical bar fifteen inches in diameter. A monster pair of shears, invented in 1911, bites off a chunk as readily as a boy would nip off the end of a stick of candy.

This steel cylinder is next shot into a hydraulic press containing dies. At a single champ the press, exerting a force of eighteen million pounds, stamps this steel cylinder fifteen inches in diameter into the dies, forming a disk 33 inches in diameter and roughly resembling a car-wheel. The same stroke also punches the hole for the axle.

The press opens, the lower die, containing the rough wheel, swings out horizontally until a crane can pick up the wheel and set it on a spindle in a vertical position, which is the proper position for a car-wheel. The spindle swings the steel disk into contact with a set of five rolls. One of these, at right angles with the face of the wheel, is to form the tread and flange; two others on each side impinge their acorn-shaped heads against the web and the inner side of the rim. This rolling is an intricate and complicated process, but it lasts only about a minute and a half.

The next step is to dish the wheel, which is still hot, in a hydraulic press under twelve hundred tons pressure, so that the hub projects beyond the back face and leaves the front face concave. At the same time a segmental die trues up the rim.

So far the whole process has been almost entirely automatic. Fewer than a dozen men and boys stand around wearing bored expressions and occasionally yanking at a lever while the monster machines do all the hard work.

The wheel then goes to the machine shop to have the hub bored and, if for passenger service, to have tread and flange machined. Wheels for freight service cannot afford to have their treads manicured.

George L. Fowler, the consulting mechanical engineer already mentioned, summing up the results of sundry investigations, finds the forged steel car-wheel good for seven times the mileage of the chilled-iron wheel. The factor of safety for the former is seven times that for the latter, while the cost for a given mileage is only half that of the weaker wheel. Fowler figures that chilled-iron wheels could be replaced with solid steel at an actual saving of $56 per 100,000 car miles.

One of the big roads, which has given special attention to the subject, found the average life of a chilled-iron wheel in the freight-service was eight years and three months. The average annual mileage was 9,243, or 76,260 miles for the life of the wheel. In passenger service the chilled-iron wheel was good for only 56,000 miles, while steel-tired wheels averaged 265,000 miles.

This road figures the cost of chilled-iron wheels for 150,000 miles at $37.45 per wheel; solid steel wheels, $24.47 per wheel, allowing scrap value for worn-out wheels in both instances.

In a series of tests in the famous railroad laboratory at Purdue University, Professor W. F. M. Goss broke the flanges of 700-pound chilled-iron wheels at 87,000 to 109,000 pounds, while the 650-pound wheels broke at 52,300 to 105,000 pounds. This gave a factor of safety of 2.5 for new wheels and only 1.4 for worn wheels on a 4.5 degree curve at a speed of 45 miles an hour.

Good for 7 Times Mileage of Old Wheels.

Add extra stresses by blows, cramping of wheels between the rails, binding of side-bearings, and the weakening of flanges by heating due to brake-pressure, and it will be seen that the chilled-iron wheel is not a very comfortable thing to ride with.

The flange of a Schoen solid-steel wheel broke at 526,612 pounds. That is, the solid-steel wheel was 4.7 times as strong as the strongest chilled-iron wheel and more than eleven times as strong as the weakest.

THE PEST OF THE SHOW.

BY WILLIAM H. SEYMOUR.

As the Outfit's Strong Man He Had the Gang's Goat Till They Found He Was Only a Mexican Athlete.

ONE night, after th' show, me an' Red is in th' privilege car givin' the bankroll th' once over. Red's my pardner that season; we have th' candy an' lemonade concession with th' Armor-Plate Show. Red handles th' juice an' peanuts; me, th' candy an' popcorn.

When we checks up the B. R. that night an' it shows that there's no nut on the joint, Red loosens up with somethin' that's gnawin' him.

"These first-of-May boys gets my animal," he cracks to me, but I don't fall fer th' lead because I know Red's got a grouch in his system that he'll unload without me doin' any coaxin'.

"If they was regular troupers," he raves on, "they'd join th' show at winter quarters in March instead of waitin' until th' boardin'-missus finally says, 'Nix,' when they tries to swing her fer another week's grubstake. When these warm-weather birds *does* land with th' trick, that's when us regulars gets an earful about our bum advance agent an' how a show should ought to be managed.

"And them that has th' most advice to slip us seems to have th' biggest wrinkles in their vests an' th' longest fringe on their pants legs when they join us. Look at this Ajax guy with his strong-man act. He's got a good front an' he knows all th' musckles of th' human body by their botanical names, but that lets him out. He can make more noise with his face than a bunch of old women on a rainy afternoon at the sewin'-club. He's got his chin inta everybody's argament.

"Isn't he th' dandiest little thirty-third degree *Pest* you ever trouped with, Slim?"

"You said a mouthful that time, kid," I tells him, "an' you said it fer th' bunch, too. That Ajax guy, or what he calls himself, wouldn't be with this outfit fer a minute if he wasn't on th' nut to th' Old Man fer about half a century in good U. S. A. darby. Th' Gov'ner staked him to some new rags an'a side-show banner for th' act.

"Doc, th' treasurer, tips me off that just as soon as this wise bird is even with th' board—bam! He'll be sloughed somewhere in th' tall sticks without notice. I'd sure love to see that big stiff jugglin' his weights an' bells an' doin' th' pussy-foot over a dozen miles of ties an 'cinders to th' nearest tank. Them weights is pretty near th' goods; you got to hand it to him, Red, fer workin' without th' fakes."

"Hand it to him!" Red squawks. "Say, Slim, the only thing I'd hand that big bum would be a two-handed clout with a pick-ax. I don't believe he's a regular honest-to-gosh trouper anyway; he carries his coin in a poke. Can you *imagine* a real trouper toting his darby in a purse just like a hick from the thickets?"

"You said something, Red," I tells him. "It's a wonder to me that he don't tie up his kale in a handkerchief. But why are you so sore on him?"

"I didn't tell you what he pulled on me this morning? No? Well, you know that me an' the little future reader in the mitt camp is working together fine. This big ham nannies in an 'tries to crab my game. He's got a bunch of highbrow gab that he pulls on her an' she falls heavy.

"He puts her hep that he's did a bit in a big-league college an' is trouping with a circus just so's he can wear out some ol' clothes an' get the fresh air. All he's got to back his stall with is a lot of dictionary words.

"Anyways, th' Pest tells th' mitt-reader

that she's too nice a Jane to associate with me, because I'm nothing but a low-browed candy butcher with no edjucation whatsoever. She shills fer me an' says that I may be a lowbrow, but my neck isn't as rough as *some* guys that slings big words.

"That oughta been strong enough fer him, but it wasn't; th' Pest don't get it a tall. Instead, he clusters round th' mitt camp until she tells him in plain, unpolished slang to 'pull his freight.'

"The snake woman comes to me on th' run; she can't make me quick enough to turn over th' story about the strong man trying to back-cap my play. When he passes th' juice joint awhile afterwards, I starts to pan him proper. He comes back at me with a spiel that sounds like a high-school oration. 'Bout th' only two words I reckernize is 'rowdy' and 'mucker.'

"Them is enough! I vaults th' counter an' makes a swing at his beak. He just knocks down my punch an' leans heavy against my face with th' palm of his mitt. That shove sends me back over th' counter an' I land on me hip-pocket in a tub of juice I was mixin'.

"Then this strong mug washes his mitts like I was filthy or had something ketching. He dries his hands with his handkerchief an' slams me in th' eye with th' wet rag when he's done. I'll get him fer that if I hafta use a gat!"

Next morning I gets a peek at the Pest with his mitts in our goobers.

"Lay off a them peanuts, you big stiff!" I yells. "Are ya trainin' fer th' p'lice force?"

He doesn't bat an eye; just keeps stuffin' his face like a squirrel on a frosty mornin'.

"Ease off! Do ya think that's a barroom lunch? Get yer hooks out a there er I'll bust ya on the beezer!"

"Fellow," says th' Pest, "if you should strike me on the nose and I found out about it I'd be awfully provoked; perhaps I'd burst out crying."

That gets my goat an' I'm huntin' fer something heavy to slam him with. We're on a lot beside th' railroad an' I finds a couplin'-pin that seems heavy enough to dent th' Pest's dome of ivory. But he just reached out an' took it from me like my fingers was frostbitten.

Then he takes th' pin by th' end, gives a heave, an' she busts like macaroni before it's cooked.

There's a freight crawlin' past an' th' Pest pegs th' two chunks of iron into an empty coal-car—only it wasn't empty. There's about two dozen "tourists" in it' an' they come up like jacks-in-th-box an' start peggin' coal at me and th' Pest. The boes must've heaved a coupla bushel before they were hauled outa range.

I didn't get hit, but th' Pest is as big as a house, an' he stops a few hunks of coal. One piece caught him on th' beak an' brought th' gravy. When he sees his bleed, he squawks like a baby an' scampers off fer a doctor. Then I'm wise that th' big slob is yaller like a canary with th' jaundice.

That night I turns th' story over to th' bunch in th' priv'lege car. It was glad tidings fer them; they all wanted to see th' Pest get his, but no one wants to hook up with him. Can you blame us? S'posing he grabbed one of us by th' wing an' busts it off like he did that couplin'-pin? No; we gotta use th' ol' bean an' make life so miserable fer th' Pest that he'll blow th' show.

A coupla days later I got a chance to put one over on him. It came off like this: Th' Pest tells me he has sore feet an' trys to borrow a bucket to soak his tootsies in. Nothin' stirrin'. Red an' me has buckets, but not fer that big bum to misuse. Instead, I gives him directions fer findin' a pail. Then I sneaks inta th' dressin'-room to see if he found it all right.

He sure did! There is Mr. Ajax with his pants rolled up, paddlin' his trotters an' readin' a Physical Torture Magazine. Then I tips Red to wise up th' Old Man.

You see, that was th' ice-water bucket that belongs in th' Old Man's office.

Me an' Red is on th' outside of th' tent when th' Old Man blew in an' blew up.

"What do ya mean, soaking them hoofs in my water-bucket? Don't you know nothin' about etiquette, ya big bum? Where was you dragged up? That'll cost you just two bucks fer a new drinking-pail.

"Do ya get me, you oversized rummy? Shut yer face! Chuck th' alibi, I've got ya with th' goods on ya."

The Old Man should ought to have canned him right there, instead of letting him by with a two-case fine. I suppose th' Old Man couldn't very well jack th' Pest until he was square with th' board; an' besides th' strong man was useful when th' canvasmen an' hostlers was paid off twice a month.

These roughnecks drag down twelve bucks per month on paper; they never got it in coin—not with this show. Accordin' to th' contract th' first two weeks' pay an' four bucks a month afterwards is held back until th' show closes. But th' Old Man keeps firin' them an' hirin' new guys, so he never has to pay any holdbacks. On pay-days he figures in fines fer swearin', drinkin' an' fightin', so th' workmen gets about sixty cents in real money. Of course there was squawks from th' suckers an' that's where th' Pest smoothed them down. Here's how they worked:

Th' sucker is called into th' dressing-room where th' Old Man pays off. The Gov'ner reads off th' dope—charges an' fines; then th' treasurer hands th' boob some nickels an' dimes along with a receipt to sign. If th' sucker stalls or squawks about puttin' his John Hancock on th' "paid in full" slip, then th' strong man begins to roll up his sleeves, an' th' Old Man cracks:

"Don't hit him yet; give the man a chance to sign the receipt."

Usually they got away with it. Th' boob signed an' walked out, th' strong-arm pulls down his sleeves an' th' treasurer calls out th' next name.

They pull this stuff on a hostler called Curly, but th' Pest doesn't pull his punch. Instead he slams th' hostler when th' hostler squawked about th' chicken feed th' treasurer slips him fer two weeks' work.

Curly is one sore guy. He frames it up to cop a sneak on th' Pest an' gets it across with a bang.

Th' Pest is doin' what we call th' "Roman Standing" in th' parade. He's dolled up like a ballet dancer in tights an' short skirts. There's two old nags that has been trained to mooch along with their ribs touching while th' Pest stands with one foot on th' back of each horse. It's simple, but it looks risky to th' yaps along th' pike.

Now Curly plays valet to these two goats an' he charges them up with ginger-root just before he leads them out fer parade th' next noontime.

Ten minutes afterward th' nags get th' funny feelin' an' spill Mr. Pest in th' wet dust by th' roadside. Then they scamper all over th' town like a coupla daffy rabbits. They're big, heavy brutes with feet as big as a beer-keg, an' when they tear across lawns an' flowerbeds they make holes in th' ground as big as a well. Th' goats must've milled around in every flower-bed in town before th' ginger-root dies out.

Meanwhile th' Old Man is weeding off th' darby from his B. R. to settle th' claims for damaged property. When he finished salving th' natives he says to Doc, th' treasurer:

"Suffering Mike! Doc, them towners sure did mace me. I think every one in this burg must be growing American Beauties an' orchids in th' front yard!"

Th' Old Man fines th' Pest ten bucks fer being drunk. Sure he was drunk—or else he wouldn't have fallen off a coupla old plugs from th' stake-an'-chain wagon.

That ten-buck fine kinda put th' brakes on our joy an' rapture, because we know th' Pest'll have to stay longer to work it out.

"I tell you, boys," says Red, "we gotta pull some stuff that th' Old Man can't fine him fer. Pull something that'll show this Pest where he gets off at with th' bunch."

Next afternoon we pull it. Barnum is showin' a town about ten miles away an' th' Pest goes visitin'. When he gets back fer th' night show, he can't find his trunk. Instead there's a mound of earth in th' dressing-room where his trunk oughter be.

It dawns on him that his trunk is under th' sod an' he starts diggin' with his mitts like a woodchuck workin' overtime. Nothin' doin'! It took th' bunch all afternoon to make that hole ten feet deep, an' we worked in shifts to do it.

When th' Pest goes on th' trail of a shovel every one tells him where they saw one "a little while ago." The shovels is all planted where he'd never find them.

He comes over to th' juice joint an' asts me if I has a shovel or a spade that I'll leave him take.

"A spade?" I says. "Surest thing; take your pick," an' I tosses him a deck of Steamboats, as I ducks under th' side-wall.

None of the towners would leave him take anything to dig with. "Circus people don't bring anything back," is what they tell th' Pest. Finally he has to hike to a hardware joint on th' main stem an' push over a caser an' a half fer a tin spade.

It's ten o'clock before he "strikes it"—too late fer him to work his act. Th' Old Man tacks on another fine fer missin' the night show without permission. We hadn't figured that possibility a tall, an' th' fine casts a big bunch of gloom over th' boys.

If th' Pest didn't know before, it's a cinch that he should ought to of guessed he was in fine an' rotten with th' bunch after us plantin' his trunk. But he didn't get hep nor even soft pedal on th' wisenheim chatter. Why, after th' show that same night there's some of th' bunch drapin' th' mahogany at th' corner when in blows th' Pest.

He nannies inta our party, but he gets a welcome like th' deuce of spades in a fistful of pink cards at a poker club.

There's a coupla town Johns beefin' about athaletics. They're all charged up with dope on wrestlin,' and that's th' office fer th' Pest to crowd in.

He wises them up that he's some wrestler —useta travel under the monicker "Jid Watson" an' knocked 'em dead when he got th' bone-crushers on th' mat.

"An' once," he says, "I contested a bull an' floored him!"

"You threw th' bull?" asts one of th' Johns.

"He's throwin' it now!" yells a voice from our push.

This bum joke brings a big hand from th' house because th' bunch had th' Pest mapped out for a Mexican athalete.

Th' strong man goes right along with his spiel. He sure did hate himself—not. Wrestlin' is his center name, he says, an' he can throw any man in town.

W'ile he's makin' all this noise there's a big husky tad pacing up an' down behind him—givin' th' Pest th' once over. When th' Pest makes that crack about throwin' any guy in th' burg, th' husky sets an empty on th' bar an' before Mr. Ajax can bat an eye, th' husky grabs him under th' arms, lifts him straight in th' air an' crashes him down on his coat-tails in th' sawdust.

"Kid Watson!" sneers th' husky. "He can t'row anny man in town, he can! Like Kelly can!"

There wasn't any "concealed mirth" in our push; we all give " Kid " th' ha-ha.

Th' big stiff is yaller like I said before. He just sits there, afraid to get up on his pins in case th' husky took another whirl at him. He's squattin' there when th' Old Man wafts in.

"What's this?" he says to Ajax. "Drunk an' fightin'? That'll cost you a finiff, Mr. Strong-Arm!"

Th' Pest is there with an alibi about being "assaulted," but he can't get it acrost.

"Chuck it!" snaps th' Old Man, as he enters th' five-buck assessment in his notebook. All th' time he's wearin' a smile that'd cop th' ribbon at a smile-show.

Gee! But that fine made things look bad fer th' bunch! It seems as though that bling-bling Pest is going to stay "with it" until th' band plays "Home, Sweet Home" on th' closin' date. Th' Pest can't seem to get his without gettin' fined. Every fine puts th' nut on so tight that he'll be owin' th' Old Man fer ten seasons.

That big bum might've been with th' show till he croaked from ol' age if it hadn't a been fer somethin' Red puts over.

It happens th' next mornin'. Red is outside th' dressing-room an' he takes a peek through a slit in th' side-wall. Ajax is inside goin' through with some practise stuff. Red puts his mouth to th' hole an' yells:

"Hello, Kid Watson!"

Th' Pest drops th' dumb-bells an' makes a slam at th' bulge in th' canvas where Red is leanin' his face against. Red ducks th' wallop an' th' Pest punches a hole in nothin; just falls all over himself.

Red comes back in about ten minutes an' yells through th' hole in th' side wall:

"O, you Kid Watson!"

Th' Pest loses his nanny again an' makes another clout at th' bulge in th' canvas. Red don't duck his nut this trip because it ain't his face that's pushin' against th' canvas. No, not a tall; Red is bracin' a big rock against th' hole. Th' strong guy lands all right an' busts his knucks.

I was up-town at th' time, standin' right near th' hay-scales in th' square; an' believe me, I could hear th' Pest bellowin' just as plain as if he'd a been standin' over by th' pump.

He ain't wise to th' rock; he thinks he's knocked Red's block clean off; so when Red ducks under th' side-wall yellin' how he's goin' to smear up th' Pest, th' big stiff is so scared that he beats it. There's nothin' th' matter with his feet except they're kinda chilly.

He runs through th' big top with Red trailin' him. When he shoots past the Old Man at th' front door, th' Gov'ner yells:

"Where ya goin'? If yer late fer parade I'll fine ya!"

"Fine an' be blowed!" howls th' Pest. "I've quit!"

Red stops runnin' when he listens to them sweet farewell words. Red says th' Pest made a beeline fer a passin' freight an' swung under to th' rods with a knack that was never learned him in no college.

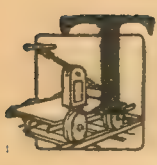
THE RAILROAD MILLENNIUM.

Steam and Electric Lines, Once Sworn Enemies, Now Lie Down Together Like the Lion and the Lamb—Both Profit by Cooperation.

TROLLEY IS FEEDER FOR RAILROAD.

Interurban Picks Up Little Freight Consignments Along Its Right-of-Way, and Hands Them Over to the Steam Road in Car-Load Lots Thus Developing Traffic for Latter—Street-Cars' Passenger Revenue Increased 150 Per Cent in Ten Years.

BY THADDEUS S. DAYTON,
Associate Editor, "Dun's International Review."



THE owner of a country store in a little Indiana town had just returned from his midday meal when the telephone rang. It was a farmer's wife, half a dozen miles away. She wanted a new cookstove—in a hurry. She had been thinking about it for months. All of a sudden, while she was getting dinner, the old one had given out. The firebox, crownsheet, boiler and everything else seemed to have collapsed simultaneously, according to her.

She was stalled on the grade. They would have to eat "cold vittles" till the new stove arrived. When could she have it?

"First thing to-morrow morning, Mrs. Smith," answered the storekeeper. "What kind of a stove did you want?"

The farmer's wife described the cookstove of her dreams.

"You know that I don't carry stoves in stock," began the storekeeper.

"Yes, but you can get it in on the trolley," answered the woman's voice at the other end of the line. "Kent's Creek station on the interurban is less than a mile from us, and Mr. Smith can go over and get it in time to cook breakfast."

"Sure!" responded the storekeeper. "The stove'll be there. Thank you. Good-by."

Then the storekeeper called up a jobber in Cincinnati, two hundred miles away, on the long distance. The country merchant who has the telephone and the trolley so near that he can reach out and touch them any time does not carry half the stock that he did five or ten years ago, yet he does several times as much business. The telephone and the trolley enable him to purvey all the comforts of home at short notice without keeping many of them on hand.

"Express Service at Freight Rates."

"Deliver this to you?" asked the jobber as he entered the name and number of the stove.

"No; bill it to me, but deliver to John Smith, Kent's Creek station, on the C. & I. Traction. It's got to be there the first thing to-morrow morning; so you must get it off to-night without fail."

"It'll be there," responded the jobber. "We'll put on a wagon and deliver it to the traction company right away. Anything else? Thanks. G'by."

In half an hour Mrs. Smith's cookstove was sent over to the trolley freight-house

in Cincinnati. On the interurbans they receive freight up to 6 P. M., as a rule. In the States like Ohio, Indiana, Illinois and southern Michigan, that are covered with a mesh of highly systematized trolley lines with through-billing arrangements, they have the slogan, "Express service at freight rates." And they live up to it.

The passenger business on the C. & I. and its connections begins to slacken about 10 P. M. Then they commence sending out their freight in two- and three-car trains. The through business starts first and makes the fastest time. From midnight until morning there is more rolling-stock whizzing over the interurbans' rails than there is during the day.

Got the Stove in Time for Breakfast.

Mrs. Smith's stove got to Kent's Creek station about four in the morning. Mr. Smith hitched up the team at half-past five, and he was jogging toward home by six. At seven the stove that had been in the jobber's warehouse in Cincinnati the afternoon before was set up in the Smith kitchen and breakfast was being cooked on it.

Much was said in admiration of the stove.

However, no one mentioned or thought about how quickly it had been delivered. Once that would have been a miracle. To-day it is too commonplace for comment. But it is a miracle that marks an approaching railroad millennium.

The average steam-railroad man who lives in a city that is not an interurban trolley center has little conception of the huge business that the electric lines are doing, or of the changes in operation that they are bringing about. The steam-railroad officials know. They have been watching and studying the trolley almost from its birth.

At first they regarded it with suspicion and dislike. They were inclined to look on it with almost the same abhorrence that the trolley observes the jitney. But to-day the trolley is helping the steam road in a thousand ways. It is the pioneer in a new field. Its builders and operators are making discoveries every year that the steam road is adopting or adapting to its own great benefit.

The steam road is a wholesale manufacturer and dealer in transportation. The trolley is a retailer. The two are no more rivals now than wholesale and retail merchants in the commercial world; in fact, there is even less competition and contention. Together, steam and electric transportation are building up this country at a rate that never has been approached before. And the giant strides that they are taking, hand in hand, are as nothing to what they will do in the future.

"If ten years ago a traffic man had prophesied that in 1915 the interurban electric railway would be a factor in interstate freight transportation, his colleagues would have thought him in need of a brain specialist," said H. C. Mason, the manager of the Benton Harbor-St. Joe Railway Company, of Benton Harbor, Michigan.

"Nevertheless it is," he continued. "It is a big factor, although it is still in its infancy, and it is growing rapidly. In the Central States, or in what is known as Central Freight Association territory, the through billing of freight has become more general than in other parts of the country. Other sections having interurban service are fast realizing its value, and the electric traction lines interested are getting into the business as fast as possible.

"A great many of the older lines have been handling package freight for years, and most of them have made a good showing, considering the limited equipment furnished and the necessarily high overhead expense connected with operating in a small way. In the West a number of lines have made a profitable showing in connection with the steam lines, they being able to load on their lines and deliver to the steam carriers at a profit to themselves and a saving to the shipper.

Carries Freight 200 Miles Overnight.

"In the Central States the traction lines have got together, and through tariffs are in effect over nearly all the Central Electric Association territory. For instance, freight leaving Benton Harbor in the evening over the Benton Harbor-St. Joe, the Chicago, South Bend & Northern Indiana Railway, Winona Interurban Railway and the Union Traction Company for Indianapolis, is delivered there by seven o'clock the next morning. The distance by that route, from Benton Harbor to Indianapolis, is about two hundred miles.

"Freight is distributed by this train to the principal stations along the line between South Bend and Indianapolis, in addition to being transferred to different points on

interurban lines out of Indianapolis through Indiana and western Ohio. One of the oldest express companies uses this same train for its express business to the points that can best be reached in that way.

"It is not as a competitor to the steam lines in the freight business that the interurban freight service has shown its worth, but as a stimulator. Where the steam roads have seen fit to connect with traction lines, the amount of new business developed has surprised all concerned.

"By going direct to the farmer's door the interurbans have been able to bring the farmer so close to the market that he really becomes a part of it. All the buyers of farm products now visit the farmer personally and get in touch with his crops and his surroundings, so that he sells his crop aboard cars on the siding within a few rods of where it is raised.

"The farmer knows what the city needs in the way of produce, the best time to market, etc. The farmer is a part of the great commercial world and is interested in it. Electric service stimulates him to raise new crops, because it helps him to find markets that he did not know existed."

The interurbans, as a rule, provide sidings capable of holding at least three cars at each highway crossing, or at intervals of about one mile. That means that pretty nearly all over the Central States where the trolleys run the haul to the nearest freight-station is less than it is in a large city. The shipments are protected from heat and storm by big covered loading-stations. If the point is important enough, cars are placed on the sidings so that the shipper may load the car himself. At smaller places shipments are left on the platforms, with the farmers' shipping-orders. The "pick-up" train comes along and carries them away.

Electric Fruit Service, Too.

During the fruit season local freight-trains run frequently over each division and distribute merchandise shipments. On the return trips they pick up the fruit and produce on the loading-platforms of non-agency stations. During the heavy shipping season these trains usually carry four or five cars by the time they reach their terminal. A switching-motor is also operated to place cars at the larger shipping centers and to take care of foreign cars.

The Benton Harbor-St. Joe Railway, for instance, has a switching arrangement with the Père Marquette Railway and a contract with the Fruit-Growers' Express to furnish them with refrigerator-cars. Therefore, farmers can have a refrigerator-car, fully iced, placed on their nearest siding early in the morning, and, if loaded, returned to the steam road the same day. These cars may be shipped to any point in the United States and kept fully iced.

Trolleys Carry Much Garden Truck.

As an example of the business done by one company alone in the handling of perishable freight, this Michigan electric road, which is not a very large one, last year handled nearly 100,000 bushels of grapes, 300,000 bushels of peaches, 50,000 bushels of strawberries, 12,000 bushels of tomatoes, 75,000 bushels of melons, 100,000 barrels of applies, 20,000 gallons of milk, 20,000 barrels of pears, and miscellaneous fruits and garden truck in proportionately large quantities. It used in this service about three hundred and fifty refrigerator-cars and nearly one hundred dry cars, and shipped its freight on through billing as far south as Louisville, and all over Ohio and Indiana.

That is one of the means by which the electric railways are beginning to solve one of the biggest problems of transportation—that of the quick collection and distribution of the necessaries of life.

There has been in the past a seemingly unavoidable waste of time and effort in getting goods from the producer to the consumer by the steam roads. It takes, for instance, a fast freight-train about thirty-six hours to travel 1,000 miles. It requires from two days to a week to distribute the contents of such a train to wholesalers, retailers and consumers at destination.

The cost of this distribution by horse-drawn vehicles and motor-trucks is several times greater than the total freight charges covering the transit of the trainload of freight 1,000 miles. In many cities the trolley now takes the freight from the steam railroad at destination and does the bulk of this distribution far quicker and cheaper than it can be done in any other way.

In the handling of their rolling-stock the interurban trolleys are able to keep it many times busier than the average steam road. That is one of the advantages of electrical operation where conditions are favorable. Cars are loaded quicker and move faster in

transit. Car shortages are practically unknown, or of brief duration, on the interurbans.

"It is startling," said L. F. Loree, president of the Delaware & Hudson Railroad, speaking of this problem in steam transportation, "to find that a car is in actual train movement on main-line track on the average for only two hours and twenty-four minutes out of each twenty-four hours. The speed of freight-trains can be increased only at the sacrifice of a part of the tonnage which the locomotives can haul and the abandonment of some of the collateral economies.

"If it were possible to increase the speed 15 per cent, the gain in time would be only about twenty minutes. The shifting and interchange movements consume on the average 10.1 hours out of the twenty-four hours in the day. The unduly high proportion of time consumed in these movements supports Mr. J. J. Hill's contention that steam-railroad terminal facilities, both in their extent and their arrangement, are today the weakest spot in the railroad structure. It is here that center the largest opportunities of reducing the delays that are wasteful to time and money alike."

Out on the Pacific coast there are a number of big electric railway systems. One of the largest is in southern California—the Pacific Electric, whose headquarters are at Los Angeles. It carries more than 76,000,000 passengers a year, chiefly between the business centers and the agricultural and horticultural districts.

Its lines gather annually and take to the sugar-factories 250,000 tons of beets. From the factories it carries away 12,000 tons of sugar, the remainder being handled by steam lines direct for the long haul. Only within the last two years this electric line has become a citrus-fruit carrier under through rates. Last year it transported 30,000 tons of oranges and lemons and gave them to the steam lines to take elsewhere.

California Has a "Rubberneck Wagon."

It gathered 2,000 tons of celery, 3,000 tons of potatoes, 1,000 tons of tomatoes, four hundred tons of strawberries, 3,000 tons of beans, and so on, and put them in the city markets, in the canneries, or delivered them to the steam lines for transportation westward.

This line also operates sightseeing trips every day in the year. Many of these run for long distances, and the trip takes a whole day. While established for direct profit, these trips serve a greater purpose in that they give opportunity to thousands of strangers to see southern California comprehensively who otherwise would see very little of it. These trolley trips are said to be the best advertisement that southern California has had.

The general attitude of the electric railroad toward the public was summed up by Paul Shoup, president of the Pacific Electric Company, in the course of his address to the American Electric Railway Transportation and Traffic Association at their convention in San Francisco last October. He said:

"Develop Traffic."

"We must seize upon methods to decrease our expenses and at the same time, if possible, to increase the efficiency of our service. That is the door through which we get business. If there be a new industry in sight, go after it.

"If a new stopping-place is needed for passenger traffic, establish it. Furnish freight platforms. Furnish team-tracks in plenty. If interline freight and passenger tariffs with steam lines can be obtained, get them.

"Look after the express and package business. Help the express in competition with parcel post. Public complaints and demands should be looked at as sources of education—the public's interpretation of its needs. Take the people into your confidence. Do all you can to get more people along the lines. Population and the public's good will are our greatest assets."

These are only a few of the big things that the electric lines are doing to build up America, particularly in the spaces between the steam roads. They show the spirit in which the building is being done. The trolley was born in the United States. It has reached its greatest development here. It is purely an American institution.

One of these days—and not in the distant future, either—there will not be a habitable corner of this country that is not within easy reach of a steam or electric road.

The steam road comes first. It opens up new regions and brings the first settlers from afar.

Then comes the trolley. It is the retailer

that must have population to live. But as soon as the least possible population necessary for its existence is in sight, the electric railroad begins building for the future. It brings the city and the country close together in point of time of travel. It is doing more than any other agency to lessen the congestion of cities and keep down the cost of fresh air and sunshine.

Statistics show that the electric railroad has become an increasing necessity to the life of the average person. In 1890 the average number of times which every person in the entire United States paid fare on the street cars was thirty-two. In 1902 this figure rose to sixty-one, and five years later it was eighty-seven. In 1912 every one in the United States rode one hundred times. On the steam roads the average number of trips per inhabitant in 1903 was 8.60. In 1907 it was 10.2, and in 1912 it was 10.51.

In 1913 the electric railways of America, excluding the steam lines that had been electrified, carried more than twelve billion passengers, and the steam lines less than one billion thirty-four million. The electric roads, however, received only about $600,000,000 for this service, while the steam lines got nearly $700,000,000. But between 1902 and 1913 the number of passengers on electric roads and the revenue from them increased more than 150 per cent, while the steam railroads' grew only about 55 and 80 per cent respectively. The number of revenue passengers carried per mile of track by electric roads in 1912 was 232,556. On the steam roads in the same year it was 136,699.

Nearly 50,000 Miles of Electric Roads.

The total mileage of electric railways in 1912, when the government took its latest five-year census of the industry, was a little over 41,000, an increase of a little more than 50 per cent in ten years. It is about 47,000 miles now. Nearly twelve million horse-power was used on these electric lines. These roads had nearly 300,000 employees, as compared with nearly six times as many on the steam roads.

The Pacific Electric, with nearly 1,000 miles of track, is the largest of these roads, with the Bay State Street Railway, Massachusetts, 950 miles, a close second. The Connecticut Company and the Public Service Railway, New Jersey, each have more than eight hundred miles, the Ohio Electric has nearly seven hundred, and the Philadelphia Rapid Transit but little less. There are some large systems under one control, however, whose total mileage is far greater than any of these individual roads.

Then there are a great many small companies—more than 1,200 in 1915. The average holding of nine hundred and seventy-five operating companies in the United States in 1912 was 52.12 miles of track and seventy-eight cars. Of all the trackage in the country 95.5 per cent was operated by overhead trolley, 3.3 per cent by third rail, 0.9 per cent by conduit trolley, 0.2 per cent by storage batteries and 0.1 per cent by gas-electric motors.

In addition to the above there were 1,284 miles operated by the electrified divisions of steam railroads. On these six hundred and sixty-nine miles were operated by overhead trolley and five hundred and fifteen miles by third rail.

At this writing the total of steam railroad electrification has been increased to more than 2,000 miles.

Pennsylvania Leads in Mileage.

In total mileage of electric railroads, city, suburban and interurban, Pennsylvania is the leading State in the country, with more than 5,000 miles; New York is a close second; and Ohio, with nearly 4,500 miles, comes next. Nevada has the smallest mileage of all, there being but 10.3 miles in that State, with New Mexico just ahead with 10.5 miles.

Indiana has the greatest trolley center east of the Rockies—Indianapolis—if not in the United States. The lines in Indiana were constructed and are operated apparently with the purpose of covering the entire State as completely and perfectly as possible. Indianapolis exemplifies the progress made in trolley systems as well as any city. It is said to have the most nearly perfect terminal facilities of any city of the country, including freight-yards, freight-houses and a passenger-station that any big steam railroad might envy.

Ohio has a number of independent trolley centers, such as Toledo, Cleveland, Cincinnati, Dayton, Columbus and Lima, but none of them has as good trolley connections with other parts of the State as Indianapolis has with pretty much all of Indiana.

The difference in conditions between Ohio and Indiana is doubtless due, in part,

to the fact that Ohio was first developed as a trolley State. The lines there have been of gradual growth, creeping out from the various cities without a comprehensive plan.

Indiana, building later, had a better conception of the part the trolley was destined to play in interurban transportation. Ohio has many lines running along the highways, a plan that is no longer regarded favorably by progressive trolley men. A highway cannot be graded like a private right-of-way, and the fast time that is now deemed necessary cannot be made on it. Therefore, the present trolley roads, or those built within the last few years, buy their rights-of-way, as a steam road does, and grade and ballast their roadbeds as solidly as a steam line.

Eastern Roads Specialize on Passengers.

In the Eastern States—like Massachusetts, New York and Pennsylvania, for example—the interurban trolley is more of an extension of the urban and suburban lines, and less of a separate proposition than it is to the westward. Eastern trolleys have reached out for the passenger business more than they have for freight traffic. In the Central States and on the Pacific slope both have been developed assiduously.

As a retailer of transportation the trolley takes the short-haul freight and passenger business, but without injuriously affecting the steam roads. What the steam roads lose thereby is more than made up to them by the new business created by the trolley. The trolley therefore is the great local collecting and distributing agency for the steam roads, and seems likely to continue to be for some years to come.

The progress of electricity has been so amazing that many persons are disposed to assume confidently the disappearance, in the near future, of the steam locomotive. This does not seem likely to happen, at least for a long time, for certain reasons, one of which is that the question of the electrification of steam roads is one of finance rather than of engineering.

In heavy electric traction, when passenger-trains of 1,000 tons or more must be run at speeds of fifty miles an hour and upward, and freight-trains of more than 3,000 tons must be hauled over the steepest mountain grades now worked by steam locomotives, the problem is different from that of the ordinary interurban line. Such substantial electric installation costs a lot of money—between $5,000 and $12,000 per mile of single track, according to the system that is used.

Electric locomotives cost about twice as much as steam locomotives. The latter cost about $15 per horse-power capacity, while electrics run from $15 to $26 per horse-power when equipped with direct-current motors, and from $37 to $45 when equipped with single-phase alternating-current motors.

On the other hand, fewer electrics are needed, because they can be built so that all their wheels are driving-wheels. The total weight of the machine may thus be utilized for tractive purposes and heavier freight-trains can be hauled.

Electric locomotives have the further advantage that they can be run at overloads of as much as 150 per cent of their rated capacity for short periods. They are thus enabled to start the heaviest trains and drag them up steep grades that would require a pusher or helper engine if steam were the motive power.

Another important benefit is the braking of trains descending mountain grades by reversing the motors on the electric locomotive, making the use of the air-brake unnecessary except in cases of emergency. While electric motors absorb electrical energy and give out mechanical energy going up grades, they can reverse this operation and absorb the mechanical energy given to the train down-grade by gravity and transform it into electrical energy. The electrical energy so generated can be turned back into the trolley wire to assist other trains and reduce the amount of purchased electric current.

The chief importance of electric braking is the elimination of the danger of derailment from broken wheels, due to overheating from the pressure of brake-shoes on long descending grades.

Most Powerful Locomotives Are Electric.

The electric locomotives operated over C., M. & St. P.'s electrified lines in Montana and Idaho are the most powerful ever constructed. As compared with the total weight of the Mallet (555,700 pounds), these electric machines weigh 520,000 pounds; but the weight on the drivers of the electric locomotive is 400,000 pounds, against 324,500 pounds on the Mallet. On the latter locomotive the rated tractive

effort is 76,200 pounds, while the tractive effort of the electric locomotive is 85,000 pounds.

The rated tonnage on a 1 per cent grade on the Mallet type of engine is 1,800 tons, while the electric locomotive is capable of hauling 2,500 tons, or 23.5 per cent greater. In an actual test one of these giant electrics hauled 4,659 tons on that grade. Even with this additional tonnage it is capable of hauling this load on a 1 per cent grade at a speed of more than fifteen miles an hour, while the speed of the Mallet ranges from eight to ten miles, carrying seven hundred tons less. Stops for coal and water are, of course, eliminated, which means greater engine efficiency, and as the electric locomotive operates equally well in either direction, it eliminates turntable delays and minimizes the time lost in yards. The cost per mile for maintenance and repair of electric locomotives is calculated to be only 50 per cent that of steam locomotives. On the New York Central the cost of operation is 3.33 cents per locomotive miles for the electrics and 8.2 cents per locomotive mile for the steam locomotives.

Electric Railway Association's Great Work.

Doubtless the greatest single factor in the wonderful development of the electric traction industry has been the American Electric Railway Association, whose membership to-day includes more than nine-tenths of the electric railways in the western hemisphere. The annals of this association are the records of the advance of electric traction in America.

It was formed in 1882 and was then called the American Street Railway Association. Electricity figured comparatively little in the daily needs of those days. The telephone was merely a scientific toy, the electric light was a novelty, and the electric railroad seemed almost as remote a possibility as talking with Mars is now.

The principal topics of discussion at the association's annual meetings up to 1890 were horseshoeing, the diseases common to horses, and the best methods of heating and lighting cars with coal and kerosene. The first cableway had been installed in San Francisco in 1873, and every one looked for that means of transit to supplant the horse. The little electric locomotive that Edison had run on a circular track at Menlo Park, New Jersey, in 1880, the inventive genius of Sprague, Van Depoele and many others who are now recognized as the pioneers of the electric railway, seemed barren of practical result.

The only source of power known then was the primary battery. The commercial future of the electric railway was determined by the invention of the dynamo when the nineteenth century was two-thirds past. The practical inventors hastened to apply the crude experience of the pioneers, and the electric railroad of to-day was born.

Only 2,000,000 Passengers in 1890.

In 1890 the total length of street-railway track in the United States was 8,123 miles. Of this only 15 per cent—1,262 miles—had been equipped for electric operation, and four hundred and eighty-eight miles with cable, while on 5,661 miles animal power was still used, and steam power was employed on seven hundred and eleven miles.

Some 2,000,000 passengers were being carried annually, and the gross income from all sources was little more than $91,000,000 per year. There were no long-distance interurban lines. Charles L. Henry, the present president of the American Electric Railway Association, was then a lawyer and Member of Congress from Indiana. He is called the "father of the interurban," for it was he who first employed the word "interurban" in connection with that class of electric traction.

Then came the period of swift transformation. The next twelve years were characterized by expansion and the realization of great hopes. The crude electric railways proved to be cheaper than animal power. They conquered the cable systems. Oliver Wendell Holmes—whose transportation poem, "The One-Hoss Shay," is still recited in public schools—called the new cars with their long poles and overhead wires "broomstick trains."

Miraculous Growth of Last Thirteen Years.

At first only the adventurous would ride in them. Folk feared the witchcraft of the invisible power. But during the twelve years from 1890 to 1902 the total number of miles of track of street railways increased to 22,577, or 178 per cent. Of these, 21,908 miles were equipped with electricity. They were carrying nearly five billion passengers annually.

In the last thirteen years the development has been no less rapid. It has been

so fast, in fact, that in order to keep pace with the march of improvement new motors, new power-houses, new tracks and new cars have had to be installed before their predecessors had begun to wear out. One electric road, for example, adopted ten different types of motors in as many years, each being an improvement over the earlier one, but each giving place in its turn to a later design. This wholesale discarding of comparatively new but obsolete material is still going on.

The American Electric Railway Association combined in one organization all the activities of the two score separate associations that are concerned in the steam railroad industry. It is a great clearing-house for the experience, knowledge and genius of the industry. It includes in its membership not only the builders and operators of electric railways, but the manufacturers who supply the machinery, materials and supplies. No discovery or invention is confined to one road. All knowledge is at once available for the use of all.

Many of the things that the association, through its members, has brought into more or less general use on electric lines have been adopted by the steam roads. Still others will be when they can be made available.

Signal Methods Practically Perfect.

In signal maintenance and methods an efficiency of 99.995 per cent., or a record of 20,000 movements per failure, has been reached. Coasting-recorders have been installed. Every time a car can coast without power at the wheel it saves electricity. This economy aggregates hundreds of thousands of dollars a year on a big and busy system. The coasting-record registers the consumption of "juice," and is an accurate measure of efficiency. Companies give prizes to motormen showing the best results.

Cab signals that control speed in an almost ideal way have been devised. If a train is running too fast, the flashing of a light in the cab tells the motorman so. If he fails to heed it within a certain number of seconds, the invisible element reaches over his shoulder and pulls the controller down to where it should be—even to an emergency stop. This eliminates fixed or roadside signals almost entirely.

The weight of the load—the number of passengers on a car—automatically determines the amount of electricity that is used in starting and stopping, and accomplishes both without a jolt or jar.

In an engineering way it may be said that the vast tunneling and construction projects carried through in recent years, particularly in and around New York, under the streets and the rivers, would not have been undertaken and would not have been possible except for the rapid advances made in the science of electric transportation.

Makes Courtesy a 24 Hour Habit.

The electric railroad handles many times more passengers than the steam line. Therefore the electric road has devoted particular attention to putting in practice such matters as making courtesy a twenty-four-hour habit. It has established systems of education for its employes and organizations among them for the discussion of their problems at meetings which are attended by company officials. The electric roads were the pioneers in the Safety First movement, especially in the form of a direct appeal to the public and its education in the prevention of accidents.

In the vast work of standardization in the various departments of transportation the American Electric Railway Association has originated many useful and practical ideas that have been adopted by the steam roads. The book of rules it has formulated has also afforded suggestions that have benefited the entire transportation industry.

What the future of electric transportation is no one can accurately prophesy. The steam and electric roads are to-day working hand in hand. There has been a harmonizing and a blending of the association between the two.

Working together for the advancement of their stupendous common industry, they have made prodigious progress in the last ten years. With the boundless possibilities of this country improvements in means of communication to keep pace with the needs of increasing population must be still more rapid. What has been accomplished in the last decade is only a token that the railroad millennium is nearer at hand than most persons realize.

And when that millennium finally arrives it is safe to predict that travel will be cheaper than ever before and accommodations better; that freights will be lower and wages higher, and that dividends will reach a more satisfactory level.

BEATING THE SHADOW BUM.

BY CHARLES W. TYLER.

"The Chief Despatcher Lays Out a Schedule, But We've Got to Get over the Road with Our Own Steam."

NO. 257, Yankee Fast Freight, west-bound, on the Boston & Maine's Fitchburg Division for Mechanicsville, New York, came working her way up under Charlestown's Austin Street Bridge from Yard 13 close to the half-hour mark that was her schedule leaving-time.

At exactly three-thirty she got the top-arm target of the "M" mast which governs the cross-over, and instantly the exhaust widened into the full, fighting power of her big superheating 2646.

With the headlight glimmering in the center of her great, black, steam-framed boiler front, with the yellow glow from her firebox flaring into the already graying light of the late afternoon, as the fireman snapped his hook in through the automatic door, with her engineer waving a "we're off!" to the watching faces in Tower B, with the head-end man standing easily erect on the foremost car, No. 257 came pounding, shattering, painting her way with surging, white-winged steam and mottled smoke out across the Portland's four-way main and on to the Fitchburg Division's outward iron, as she began her inland flight west toward the Hudson over the Hoosac Tunnel route

Night was settling down early. Rain and sleet were whipping up across the lower yards ahead of a sharp, penetrating wind, which chilled with raw, discomforting directness. The coming of the storm with the going of the day gave indication of a blow off the old North Atlantic—a drive right out of the nor'east.

Even with my heavy storm-coat buttoned close beneath my chin I half shivered from the very dismal bleakness of the waning afternoon, with its first foretaste of winter.

I turned my back to the wolfish slash of the wind-driven particles and started toward the Charlestown roundhouse.

It was then that I found myself face to face with the man about whom this short life's story centers.

He, too, had been watching 257's departure. And there was that about his eyes which told that the fascinating spectacle of a big locomotive working steam at the head of a heavy train had not been lost to him. It was life, power—it was the game, I felt, to both of us. His first words confirmed the intuition of which I was half conscious as our eyes met.

"Gee! The ol' whale takes 'em out of town pretty, don't she?"

Then suddenly sharp suspicion shot the depths of his gray eyes. They steeled and hardened. It was the challenging, half-defiant gaze of the luckless wanderer who is down—down and out in the eyes of the world and of himself. He feared, distrusted, hated all mankind. He was bitter against life. His face told that.

Now, he wasn't quite sure of his ground.

Was I of the law to hound him, or the worldly wise and arrogant individual who has learned to look upon all who approach in rags as ordinary bums or professional panhandlers? He took a step nearer; his eyes never left my face, while the fingers of his right hand strayed to the left breast of my coat in quiet but swift quest of any shield beneath.

"Say, you ain't a bull, are yer?"

His voice contained a certain tired plaint which carried even beneath the outer harshness of it. He just wanted to be sure of me, that was all. For he was only a floating bit of driftwood on the ever restless sea of Life, and men had not proven his friends in the ebb of the tide.

I assured him that I was in no way connected with the police—of railroad service or otherwise. Then ventured a query of my own.

"Are you a railroad man?" I asked.

"I *was*, pal—once."

He hesitated uncertainly a moment.

"An' you, 'bo?"

I nodded and pulled off my glove.

He caught the movement and extended a long, bony hand to meet my grasp.

"Shake, ol' timer!"

His eyes lighted for an instant, then faded to bottomless depths of longing which reflected the very soul of him.

"Nobody has put out their mit to me that-a-way in a long time, friend."

He was cold and hungry—heart-hungry, too. His face and hands were blue from exposure to the bleak, wind-whipped sleet which breathed its icy touch of the north. And the body hunger that clutched and gnawed from within found expression in every movement and glance. It was a hollow emptiness that had long been of his days and nights; never wholly satisfied—a thing which showed all too plainly in his sunken gauntness.

His thin, tattered clothes clung to his frame in limp, bedraggled folds; travel-torn shoes left exposed here and there glimpses of stockingless feet; a checkered, shapeless cap, much too small, he had pulled tight over his gray-streaked hair, while his cheeks and chin were covered with a growth of thick, stubbly beard.

Without class or caste—except of the vagabond—he was, nevertheless, still a man. A man who, somewhere deep inside of him, had those things—qualities, characteristics, virility—which all men are born with. The heritage of the mother's love and hope.

And then came No. 259—which follows 257 in swift pursuit just ten minutes behind the latter's fast schedule across the State—working *her* way up under the Austin Street Bridge. She, too, got the target on the dot, and like 257, plumed and feathered by smoke and steam from stack and dome of her big freight-hauler, while wide-flung white-wings flared from her open cylinder-cocks; she advanced with battling thunder across to the Fitchburg's outward iron and steadily settled into her quickening pace at the head of her train of fast-freight stuff.

The man beside me watched her with hungry admiration. He'd forgotten my very existence.

"I'd give—I'd give my *soul* t' be on 'er deck, t' feel the throb of her exhaust, t' hear the whine of her 'gun,' t' have the heat from her firebox in my face! I tell yuh, that's livin'! *It's life!*"

I caught the words above the clatter of the trailing cars as they rattled past. Then, suddenly, the man turned to me.

"Say, did you ever get the iron on a open country job with a big engine an' feel the slash of the wind when you swung on to the pad for a bit, an' have the ol' drivers rolling down there below yer, an' the exhaust choppin' it off short and crisp? Did yer ever fire, 'bo?"

Again I nodded.

"An' yer can't ever play the game up there in the ol' cab—up there on 'er deck—whether she's stayin' on the pin or walkin' back, and not get caught by the fascination—th' lure of it. Can yer?"

He broke off suddenly. The green of the train's marker-lights were glimmering in swift approach less than a dozen car-lengths away.

"Huh! I lost m'self, gabbin'! I'm goin' west on this hitch!"

His eyes squinted for the passing hand-irons; he jerked himself to a crouching position beside the moving bulk of the cars and started to run for a "low one;" but I caught him back. He whirled with a half-snarled oath on his lips.

I shook my head.

"She's going too fast. And anyway you're coming for a hot feed with me before you hit the trail to-night, old man."

I piloted him up over the tracks of the Terminal Division, through the trainshed and out to a place I know on Causeway Street, where there is a little table in the corner and quantity and quality with the orders.

"My name is Tyler," I said. "Would you mind telling me yours?"

He did not answer immediately, but stared out into the darkening street, where pedestrians and teams shifted and hurried and dodged through the cold drizzle that came down past the elevated structure.

"*My* moniker don't make much difference, pal," he began at length. "But they call me 'the Shadder Bum.' I guess it is because I always travel alone an' never have much to say. When I got down this far I dropped the name I was born with. It was a heap too good to drag into th' mud with me. *Now*, Tom Brown or John Smith

are all the same, and any of 'em are good enough for the police register when the bulls send me up for gettin' caught bummin' in th' yards."

He paused, while his eyes drifted away to a somewhere far beyond the city's noises—a somewhere far down the pathway of his life.

I said nothing, but waited for his thoughts to adjust themselves.

I think that all of us find more or less happiness and relief in confidences—in divulging the things which are under our skin to some sympathetic fellow creature, one whom we feel we can trust with our joys and sorrows, sunshine and shadows. It is pretty hard sometimes to just go on living within the limits of our own being—to just go on living with ourselves, deep down in the soul of us.

Here was a man who had something to tell. He was tired of living alone with it. And, after all, it was only a bit of life.

But I'll let him "sit in"—the Shadow Bum. It's his story.

"I was born an' raised in a little town out on the Coast. It's name ain't of much consequence here, so I won't mention it. But it ain't far fr'm where the surf pounds up in the shadow of the Santa Ynez. It's warm an' sunny out there, and there's palm trees, an' a little mission, an' homes. It's th' place where the folks nearest to me have lived an' loved an' died in.

"It's a queer thing how no boy ever thinks he can get a start in his own town. He's got t' get out where the world is big—out into the tide of life. I went, j'st as a lot of 'em have; but somehow the undertow got me, and for a while I didn't try to swim against it—didn't want to. Then the first thing I knew it had me. I've never been free of it. I'm j'st flotsam on th' sea—only a foot-loose boomer. No; I'm lower 'n that, now. I'm broken! I'm a *bum!*

"It seems like there has always been somethin' beckonin' to me fr'm up around the bend, a sort of El Dorado lurin' me toward a land j'st beyond.

"The prospector—the true ol' 'desert rat'—knows the call of it. He hears it in the Painted Hills, and the valley of the Big Smoky. Then one day he reaches it. He's tired, an' he stops to rest. Perhaps in an old prospect hole, perhaps in some sun-baked arroyo, or even somewhere on the heat-scorched desert, where he sees the silver shore of it for the first time, as he drifts across the border to his last claim.

"It was the sea that pretty near got me first, but in the end the life and throb of the iron trail proved th' biggest fascination; so I went out to it one mornin'—and I've never been back.

"You know, after you've been playin' the prodigal wanderer out in the world, it's only human that yer want to have improved your looks an' dress an' fatted up a little roll, j'st to show the folks back home how much of a man you've really got to be. Yer kind of like have 'em look up to you as somebody who's worth while, don't yer?

"But, say, yer couldn't go back like this, could yuh? It ain't done in story books that-a-way. An' it ain't natural, anyhow. If yer dread th' thought of goin' back where you was born, it's a mighty sure sign that you're not all you ought t' be—you're a failure.

"You've probably guessed the part I haven't told yer, already. It's old, old stuff. You have seen an' read a heap about it at one time or another—the girl o' course.

"I said good-by to her on the trail that leads to the old mission, which shows green an' white with a cross up against the sky. An' I remember, too, that there was a priest in a white cassock standin' beside one of the square, vine-covered supports of the arcade—aw, sure, 'bo, I remember it all! It come back as clear as if it wa'n't any longer ago than yesterday.

"I get half afraid, somehow, too, when I stop to think j'st *how* long it really is. All I can see is the girl, an' the mission, an' the old priest, just as they was then.

"I hit it pretty lucky when I got out on the road. Times were good, and I didn't have much trouble gettin' on 'most anywhere. But I couldn't seem to save anythin'; so I began to drift. First to one place, then another.

"I fired on the Tucson Division of the Espee between Yuma an' El Paso f'r a while. Then I hit the Katy lines, the D. & R. G., the B. & O., the C. & N. W., the Iron Mountain, the Lake Shore and the Pennsy lines. They were all good lines to work for; only my feet itched. After a while, though, I hit a pike, where I made up my mind to stick.

" 'Here,' I says, 'is where I'll stay, save my coin, an' then go and get the girl.'

"All the time I was gettin' letters from her—the constant, helpful, cheerin' kind

that makes yer reverence the woman of 'er. Never once does she write of the ache that must 'a' been in her heart; only that she was waitin'—would be waitin' till I came. I tell you, ol' timer, it's that which gets me the hardest, when I stop to think about it. Her waitin', f'r *me*—th' Shadder Bum! And I not enough of a man even to write an' tell 'er j'st how low I am.

"I guess, stranger, that when a woman *loves* she loves a pile. Else how is it they're always stickin' by some worthless hams who ain't worth the time an' powder it'd require to take 'em out and shoot 'em, as they deserve?

"I was on this last road I mentioned nearly two years. I'd got rights enough so I could bid off and hold 'most any of the regular freight-jobs. As a rule they were a little stiff and the older men didn't want 'em. *They* were after the switchers and local stuff, or else the passenger-runs.

"But fast freight was pie f'r me. It was work every minute, over an' back—two hundred all the time all the way. Still, you don't mind that part of it. It's j'st goin' out an' gettin' somewhere—gettin' 'em over the road on time, with a white feather an' a red stack. There's thrill an' life to it—somethin' you never forget. And nothin' in this world could have brought it home to me stronger than j'st watching them big hogs steppin' 257 an' 259 there out of town a little while ago.

"But what I started to say was that on the night I'm goin' to tell you about I was holdin' down 201, a second-class fast-freight job. Her schedule was just as stiff as they could make it, and it meant leaning on 'er all the way to get over the road on time.

"At the other end we got the usual eight hours; then came east, while they figured on giving us the road as well as they could so we'd get home in time to have our rest and be ready to go out with her again on our side of the job.

"It was in December. Traffic had been heavy right along, an' they were double-heading everything—j'st loadin' 'em for the full 95 per cent of the combined rating of any two of the road-hogs. It even got to be a practise to slap extra tonnage on the fast jobs. We got it with th' rest, although they did offset it some by generally givin' us a helper for the first thirty-mile grade.

"We had one this night. It was bitin' cold, with snow and a head-wind that slapped into our faces till we might as well have been stone blind f'r all we could see beyond our own front-end. Our drag was half frozen up to begin with, and before we got it warmed up an' wheelin' well we were off our schedule a mile.

"Our helper was in on the train, which gave us the handling of the drag. Out at the first water-stop our head-end man dropped back to the buggy for some reason or other; so there was only m'self an' the hogger in the cab of our mill when we began battin' up the grade west of what was known as the Stone Bridge.

"The lad who was pulling the latch on the job was a spare man. Two hundred and one was up for engineers' bids, and he'd caught it for a hold-down meanwhile. I knew him by sight, and that was about all. Neither of us bein' much on gab, there was mighty little confer passed across the deck—hardly half a dozen words altogether.

"After we hit the hill beyond the Bridge I noticed that he had closed his window an' was sittin' tight. But I had too much to do keepin' her up against the pin, however, to pay a great lot of attention to what *he* was doin', except that it struck me kind of queer at the time that he didn't seem to be givin' much attention to anything outside—was j'st crowdin' 'er an' trustin' to the fact that we had schedule rights.

"Oh, it all came back afterwards! It wa'n't good railroadin'—goin' at it blind that-a-way. Although with that drive out of th' west beatin' flat into our teeth, why, as I said, it wa'n't much use tryin' to see through it. I remembered, when I looked back at it, how that hogger of mine might have been asleep from the position of him.

"But it didn't strike me then, for we were on a hill an' not makin' fast time; and I've seen a lot of runners who slopped all around the cushion like they was half dead, when in fact there was mighty little within ten miles that was gettin' by 'em.

"But the point of it is that we were whalin' right along steady when we swung onto Channel Curve. We were 'most over the hump.

"Goin' west the right-of-way here swings sharp to the left. It had always been my habit to hang out of the gangway f'r a look at the target which protects trains headin' into a passin'-track up around the curve. I was more'n particular this night on account of there not bein' any head-man up on my side watchin', too.

"But somehow in th' storm I lost my bearin's f'r a minute, and we were by before I caught it. The hogger was still slouched down on the cushion an' I hesitated a second before hollerin' at him that I hadn't been able to pick up the signal

"Then it happened!

"We hit a gun, a fusee blurred in flarin' red ahead, two tail-lights showed misty f'r j'st an instant—an' we were into 'em all over!

"It was an extra pullin' into the sidin'.

"The last thought that flashed through my mind as I ducked down behind the boiler-butt was that my hogger *had* been asleep because of the half-instinctive way he jerked himself up and jammed in the throttle and winged 'er, even as we caught 'em.

"We killed the extra's conductor. He didn't have a chance in the world. There was a trainmaster ridin' her, too, but he'd seen us just a second soon enough to get out before our front-end nailed the hack.

"It was short flaggin,' partly; but that wa'n't the thing that was th' big factor in the hearin'—it wa'n't the surprise the investigation sprung.

"Somebody found a small whisky flask buried under th' coal that had piled down on to th' deck of our engine. *Who* did it belong to? The hogger, or me?

"It was one or the other of us, they said.

"But what knocked me cold was when the hoghead got up an' swore that *I* called a "green eye"—that I called the signal wrong to him that night, an' that it was *me* who th' flask must have belonged to.

"It was just a case of my word against his. Of course I denied it flat that the booze had been mine. But I didn't put up much of a defense—I couldn't. They wouldn't 'a' believed me anyhow.

"There ain't much else to tell, pard. I was discharged outright. It hit me pretty hard, too. An' then again they follered me up for a while; I lost my card and didn't land another job till away along in the spring. And that was under another name out on the Oregon Short Line.

"But this didn't last long, f'r biz was on the toboggan all over the country, and of course I was one of the first of the spare men to get it when the big slump came.

"It's goin' on two years now that I have been on the rocks—goin' lower an' breakin' up all the time.

"But somehow, out there in Charlestown to-night, the thrill and life of it all came back—gripped me tight an' carried me away by th' irresistible force of it. And th' bitterness an' hate in my heart kind of faded f'r a minute, while the love of the game crept in, bringin' with it a flash on th' screen of yesterday, a picture of the mission, an' the ol' priest—an' *her*, waitin' f'r me, out there by th' Santa Ynez.

"I tell you, 'bo, I wisht I *could* go back—I wisht things had turned out different somehow. But I guess it's '30' f'r me; I guess I'll j'st have t' pass along down th' road as I am—th' Shadder Bum."

It was nearly a year later. I was going west on No. 21. It was along about 10.15 P.M., and we were pounding along up into the Hoosac's—almost up to the "Big Hole's" East Portal, where the electric engines back on—when I was conscious that somebody coming through from the smoker had stopped in the aisle opposite my seat; then a strangely familiar voice said:

"Don't I know *you*, friend?"

I looked up. It was the Shadder Bum. But how different from the gaunt, unshaven creature whom I had met in the Charlestown yards of the B. & M. nearly twelve months before! This fellow I now stared at was a *man*. He was clean cut, well groomed, confident, with eyes that met your gaze square and without fear or suspicion.

We shook hands, and I made room for him beside me.

"And so you came back after all, old man?" I said.

"I did, yer know!" he answered with emphasis.

We had the car almost to ourselves. The steady bark of the big 3600's exhaust came back to us sharp and distinct, with a certain abbreviated fierceness, while the creak and tug of the train told of the Pacific's efforts to bat her over the west end on time.

"Lis'en to 'im maul 'er up th' hill!" the man beside me murmured absently. "Ain't he hittin' 'er, though?"

"But," I interrupted, "*you*. What about yourself this year gone?"

And then he told me.

"It was the girl, pal—th' woman of her. She'd guessed pretty near how things were goin' with me, although I'd never written her a word of my bein' down. Hadn't written at all, in fact, f'r so long that I didn't want to think about it.

"But I guess it must be the mother instinct in 'em—the power God gave 'em to love, an' sympathize, an' *baby* th' man when he's in trouble. And a heap of us sure ain't much better than babies sometimes, when it comes to bein' helpless an' discouraged an' we've kind of lost our grip on things.

"Then is the time the woman steps in—if she cares. She'd fight seven times her weight in wild-cats if she had to, j'st to keep th' man's head up. She's loyal, she's got faith, she's the female of the species, with all that's been said about 'er—that's good.

"It wa'n't a long time before Thanksgiving that I accidently blundered across a paragraph in th' "Address Wanted" part of a magazine—an' it was f'r me. She wanted me to write; wanted me to know that she was waitin' still. After all those years.

"It hit me pretty hard, that did. And set me thinkin', too.

"Yes; I wrote, an' the answer came flyin' back as quick as th' mail schedules could bring it.

"There was a money-order slip between th' sheets. An' the letter? Say! She knew pretty near as much about me as if I'd written her every word of it. She knew that I was down an' out, else I'd been home—been back f'r her. Even then she didn't say a word about her own heart-aches, an' days an' nights of watching, an' week followin' week around into months and years without anything but flimsy promises of to-morrow—th' dreamday that never came.

"No; it was never a word about herself; j'st anxiety f'r me. And now she says she knows it must have been pretty tough for me with the times so hard, an' she says she is awfully sorry, an' wants to help me j'st a little.

"*She!* Sorry f'r me, an' her own heart breakin'. . . . But that's th' woman part of it, I expect.

"Well, s'r, I j'st folded that little blue money-order slip up tight an' tucked it away down inside of my shirt. I couldn't use it, could I? It wa'n't money that *I* needed; it was a beatin'. A little sand, a little manhood, a little steam to fight th' yellow in me.

"Th' world hates a quitter; an' that was what I was. I realized it then; so I went out an' 'decked' a high-ball job north that same afternoon. I was mad. I was goin' back an' fight f'r th' job I'd lost through another man's bein' drunk—goin' j'st as I was, a dirty, ragged 'bo—th' Shadder Bum.

"But I guess the Big Chief Despatcher over Yonder There must'a' kind of had his eye on me. He sort of lays out a schedule f'r all of us, I reckon; but we've got to get our train over th' road with our own steam. He don't allow it's justifiable, to us or Him either, that He should 'sit in' at the Big Train-Sheet, and have to handle our drag f'r us besides. We've got to help ourselves, that's all.

"When I got out, picked up th' thread of life where I'd dropped it, an' widened on 'er again, why, He was right there ready with the clearance. It was my move all right—had been for some time, too.

"My old job had been waitin' for me goin' on two years—waitin' for me to go back with my head up an' ask for it like a man. The question of the booze-flask had been cleared up about four months after I'd dropped my hands an' hit the rods—a quitter.

"I got my rights all back, business began comin' better and better, till now, with things boomin' the way they are, why, I'm holdin' the best-payin' fast-freight job on the division. And that night I was watchin' 257 an' 259 fightin' up under the bridge an' past the tower—willin' to sell my soul j'st to be back behind a boiler-butt again—all seems like a strange, wild dream.

"Yes, I went back. And we were married—the girl and I— up there in th' white-green mission on the hill. And happy? Why, pard! she's the happiest little woman in th' world to-day. An' when we speak of those other days, she only laughs an' says, 'But *I* knew you'd come out all right in the end; so I just kept right on loving you and praying for you.'

"And say! It wa'n't *me* at all, that beat th' Shadder Bum, was it, ol' timer?"

OBSERVATIONS OF A COUNTRY STATION-AGENT.

BY J. E. SMITH.

It's Amazing, the Fortitude and Philosophy with Which We Can Bear the Sufferings of Our Friends.

"I HATE TO SEE ANY ONE CARRY ON LIKE THAT," EXCLAIMED MANOGUE, "WHEN IT'S ONLY A LITTLE HURT!"

ANY one present ever have the toothache?

It comes in varieties—fair, common, choice, prime. At times it is dull and heavy; again it is sharp and throbbing; still again it may be grinding and lancinating. It may be regular or recurring. It may be paroxysmal and suddenly disappear, or it may come for a long stay, like a dependent relative.

When it comes you know you have it. All authorities are agreed on this point.

Michael Manogue of Section 27 had the toothache.

"I wouldn't make such an infernal fuss over a little thing like the toothache," complacently observed Haggarty, his colaborer. "I'd let her thump and jump. The way you take on, Manogue, is worse than any old grandmother with bunions on her feet or blisters on her back. You know what I do with a little pain?"

"You'd yelp your head off," growled Manogue, holding the side of his jaw with his hand.

"Huh! I'm no baby. I'm no weaklin'. If I had the toothache I wouldn't bother you and Casey with it. I'd fill up the offending side with good tobacker—fine cut's

the best; don't need chewin'. If it was the growlin' kind or the jumpin' kind, I'd say nawthin'. I'd never be howlin' around like you are, Manogue, over a little pain."

"I ain't slept a wink for two nights," feebly protested Manogue.

"That ain't nothin', either," retorted Haggarty. "What's sleep? It's only a habit, like chewin' tobacco or drinkin' booze. Any able-bodied man ought to be able to go a week with only a few hours' sleep."

Manogue let out another groan.

"I'm not sayin' it don't hurt, understand," explained Haggarty, softening a bit. "Everything hurts that ain't right. Headache hurts. So does a gatherin' in the ear, and corns or rheumatism. All I'm sayin' is, you gotta stand it, and there's no good in makin' all these loud, mournful sounds.

"Cut out the wail. Can the roar. Have some nerve."

"That's the ailment," groaned Manogue. "It's the nerve. There's thirty or forty feet of it all wound around and tangled up down along the jaw and in front of the left ear, and the insulation's worn off, and it's spittin' fire and addin' a few volts every time it cuts loose. Um! Oh! Ouch! Wow!"

"Oh, s'pose it's sorta disagreeable, but all this yawpin' about it is what I can't understand."

"You'd understand it all right if you had it," returned Manogue weakly. "You'd yowl like a lonesome tomcat on a zero night, if you had this tooth of mine in your jaw—"

"Oh, I don't say it don't hurt a little," continued Haggarty. "I take it there *is* a streak of pain now and then, judging by the noises floatin' about. But I do say, what I admire about any one is the grit, the—the indifference—that what-you-call-it—self-possession to go up against a spasm or twitch of pain without lettin' loose all the emotions.

"I'm savin' all my groans for my departed friends. I would never let any of 'em loose on myself because a little stray hurt happened to slip athwart my jaw. Now if you should be taken from our midst, Mike Manogue, I, Thomas Haggarty, the hand, and Casey, foreman, of Section 27, would both emit a few low, moaning sounds—a few broken murmurs, understand—but on no other occasion would we make any sound—neither of us. We have our own sufferin's, but we keep 'em to ourselves."

This airy stoicism did not in the least soften the pangs of Manogue's aching jaw nor repress the inclination to get a measure of relief by moans, groans or curses according to the ruling emotion of the moment.

"I don't say it don't hurt; git that plain," Haggarty continued. "What I'd like to see is you standin' it without battin' an eye. What makes me feel bad is to find that you are one of them milk-and-water, wishy-washy, spineless, soft-shelled milksops that can't do anything but whine when anything bites.

"I am disappointed in you, Manogue, that you ain't a real man—one of them what is called stoics or Spartans. I'm fooled in you, Manogue; I am for true. I never thought you would carry on like this over any third-rate ailment like the toothache. I thought there wasn't any of the ordinary pains that could make you wince."

Manogue did not argue the case. There is a certain degree of misery that gets beyond words. Haggarty's appraisal was of no consequence, so urgent was the grind and thump of the insurgent molar.

"There you go again!" added Haggarty once more. "I see now it's all been a mistake in creatin' you a man, Manogue. You was aimed for a toad or a mud-turtle. They don't have any teeth.

"Suppose a little further, Manogue, that you'd been gotten up as a crocodile with one lineal rod of teeth. Think of that—a row of teeth fifteen feet long! Then if you'd get the toothache, there'd be some excuse for splashin' around—"

"Come off, come off! Give the poor slob a rest," interposed Foreman Casey. "Toothache's no joke. If you had it, you'd be howlin' as wild as Manogue."

"I wouldn't take on so over it."

"You wouldn't, eh? Well, I'm sayin' you would. All I hopes is that you will have it some day good and hard. If you do, mind you, and you go hoppin' around from one foot to the other, you are goin' to have two mighty cheerful sympathizers in me and Manogue. We will both be most contentedly and delightfully sorry for you, Haggarty, take it from me."

"When I go blubberin' about over any of these little teeth or toe-pangs," replied Haggarty, "you can express your fellow feelin's to suit yourself. I may some day beg a bite to eat or somethin' to wear, but I'm never goin' to be hangin' around for sympathy."

"Toothache is mighty painful," observed Foreman Casey thoughtfully. "It will lay a man out almost as quick as appendicitis."

This thought was suggested by Manogue's actions. Manogue had dropped out of the argument. His distress was too acute for either retort or explanation. He sprawled out full length upon the grassy right-of-way, and buried his head in his arms.

"Bad teeth kill a lot of people," lugubriously continued Casey in lowered voice to Haggarty.

"So does hard work," interposed Haggarty, "but I never heard of any section foreman that ever tried to save a hand on that account."

"Go home, Manogue," Casey called out abruptly. "Go home and hold cold water in your mouth, and keep cold cloths to your jaw. If you are easier in the marnin', come out. If you're worse, stay at home.

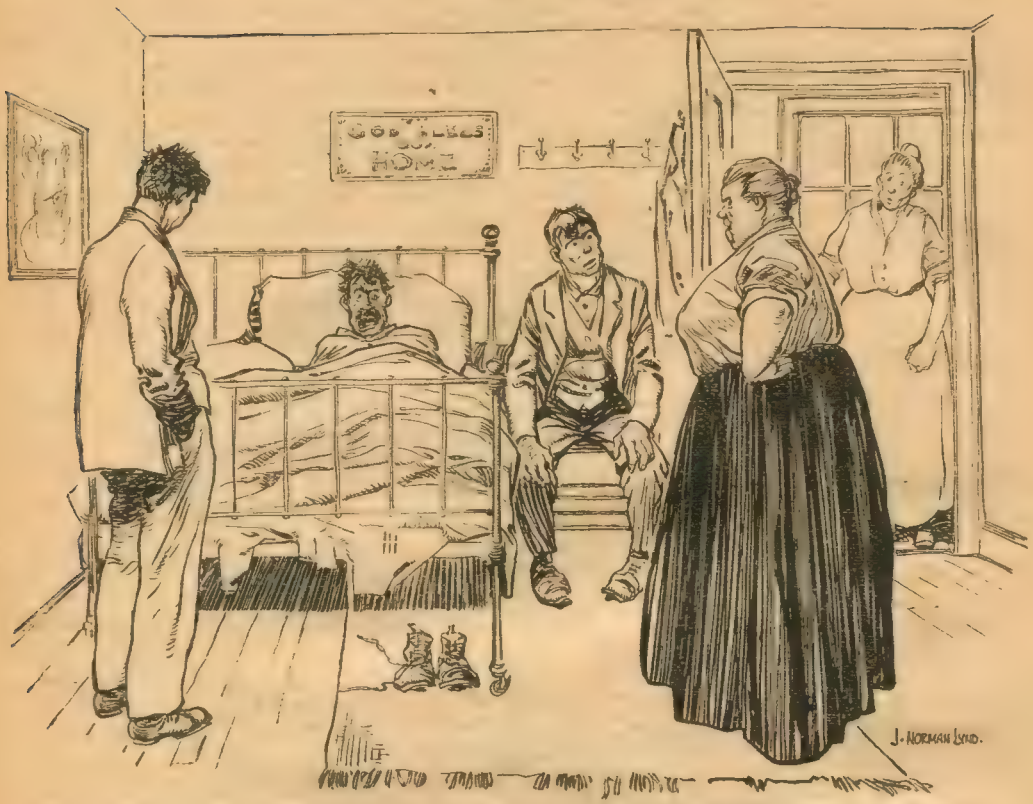
"But I'll tell you: Go to a dentist and have it out. A bum tooth is liable to give you trouble any time. The sooner you get rid of it, Manogue, the better you are off. G'wan home now."

Manogue gathered himself together, got his coat and pail and made off toward town.

"Home's the place for any one that's not fit to work," commented Foreman Casey as the gang resumed its work of picking up low joints.

"When a man can't do nawthin' but set on his haunches and howl like a hound pup, home's the place for him all right," corroborated Haggarty. "It's in me to say it again and I'm goin' to have it out: Whin a man weighin' one hundred and eighty hops around and whines like a sickly little kid 'cause his tooth hurts, I can't be feelin' around for soft words. I'm wantin' to hand him a kick to help him along and give him somethin' to make a noise about. That's me—that's I—that's yours truthfully, Thomas J. Haggarty."

"SUPPOSE A LITTLE FURTHER, MANOGUE, THAT YOU'D BEEN GOTTEN UP AS A CROCODILE WITH ONE LINEAL ROD OF TEETH."



"IT DON'T MATTER HOW MUCH PAIN HE HAS, MRS. HAGGARTY, THOMAS WILL NEVER WHIMPER."

Zeno of Citium preached something like this from his porch at Athens, and we have it again from Thomas J. Haggarty from his forum of an oak tie. As I have it, there were listeners to Zeno's philosophy. But not a soul lent an ear to the system of cynics as expounded by Thomas J. Haggarty.

No man, however, has any fame in his own time as a philosopher. It must be left to posterity to tab the leaders of the cult and line 'em up something in this order—Zeno, Cato the Younger, Marcus Aurelius Antonius and Thomas J. Haggarty.

"I only hope, Haggarty," said Foreman Casey with a sort of kind and humane piety, "that somethin' will git you some day that will torture you enough to make you dance. Manogue and me will stand by with soft and soothin' words while you carry on."

"Welcome to our midst, any time I do," retorted Haggarty with a snort of challenge. "If I give you the chanst, why come along with the sympathy."

The following morning Manogue was again on the job.

"Hi, ho!" exclaimed Haggarty in kindly greeting. "See who's back with us again! How's the four-pronged molar this beautiful morning? How's the hopping bicuspids? Did you Fletcherize your fodder this mornin', or are you still on the milk diet? Did you try the cold rag Casey was so good to recommend, or did the dentist yank it out? Did you spend one more night barkin' at the moon and hatin' your fellow man, or are you goin' to square yourself up—"

"What's it to you?" asked Manogue churlishly. "When I went home yesterday afternoon it was a great comfort to me to know that I had the pity and the tender sympathy of the gang as expressed by the spokesman, Thomas J. Haggarty. It made me feel a lot easier, I do assure you."

"Don't it still ache?"

"It aches, and it is the still ache. I am still about it. Yesterday I was givin' vent to my emotions. I see now you were right, Haggarty. The proper way to have the toothache is with a dead hush.

"Now you are seein' me havin' it speechless and noiseless. I'm walkin' around on tiptoes and breathin' easy. I'm havin' silent

pain, Haggarty. It's the only way. Be dumb. There ain't any other agony so beautiful for outsiders to behold, and observe and listen to, than the rubber-tired, pneumatic, noiseless. From now on, Haggarty, I'm strong for it."

"It ain't nature," protested Foreman Casey. "I say, howl, and yelp, and cry and cuss. The Lord made us that way from the minute one. It is the only way to handle a pain. It is the mechanical pop-off for the pressure."

"But you don't show any grit that way," urged Haggarty.

"Nobody has pains and aches to show off by. You ought to be a woman, Haggarty, so you could wear a ribbon, or a feather, and paint up your face, since it's so strong in you to show off. *I* say, Haggarty, when any one's got the toothache like Manogue had it yesterday, he ain't givin' a tinker's cuss whether he shows off or not.

"It's always the heroes that's never been up against anything that can tell you just how to perform. It takes an old maid to tell you just how to raise a brat. As I said once before, Haggarty, I'm not wishin' you any bad luck, but if there is to be another visitation of Providence on any member of the gang of Section 27, I only hope—"

Foreman Casey stopped with further words unborn.

Manogue added that if Haggarty were touched it might be a good thing for him. But—

Manogue went no further.

The omissions were eloquently significant.

"I thank you, one and all, for your well wishes," returned Haggarty, tauntingly. "You can't sting me with 'em, and they don't inoculate me with anything, so it's no harm, and so go to it."

Manogue had a swollen jaw, but he made no complaint of any sort. He worked through the day and the day following with a taciturnity that was positively annoying to Haggarty. It is recorded regretfully that this worthy wanted Manogue to howl. His partner's reserve and evident ability to bear pain without any show deprived Haggarty of a fine line of comments. Haggarty made frequent inquiries, and Manogue hedged by assuring him that the pain was still present, but that he, Manogue, had altered his demeanor toward it.

There are no ways of gaging the caprices of what we are pleased to call fate. Whims, vagaries and fancies run through our lives like the strata of the *terra firma* under our feet, and we know not what to-morrow's outcroppings are to be until we come to them.

It was noted that on a near day after Manogue's affliction that Thomas J. Haggarty, the Apostle of Stoicism, slowed down. On the second day he came almost to a dead halt, and that on the third day he was not able to report, while the word that came from his home was that he had the hip-gout, a savagely painful but rarely fatal affliction.

At a convenient time in the day's work, Casey and Manogue hastened to call on their fellow laborer.

As they approached the door of his home wild and discordant noises were issuing therefrom.

An attending woman met them at the door.

"Come in, come in," she said in the flurry of attention. "Mr. Haggarty has been and is now sufferin' g-r-e-a-t pain. It's in his hips. He's takin' on somethin' dreadful. He's curst every body, he has. I do feel sorry for his poor wife. That's a good woman she is, and almost crazy with his cryin', and callin', and shoutin' and bawlin'.

"Don't seems like whisky or morphin does him any good at all, at all. I says to him, I says, 'bear up like a man,' I says. And he up and shouts to me. 'To blazes with you! You never had it.' He's that sharp-tongued and unreasonable."

To have this remark properly punctuated, an exclamation point was hurled from a rear room, landing with an explosion that benumbed the woman and almost lifted Casey and Manogue from their feet.

"Howly Moses!" exclaimed the woman, getting her tongue. "That's him eruptin' again! He's been takin' on that way all day. It's awful! It's awful!"

"It's too bad," observed Manogue in counterfeit tones.

"It is! it is so!" exclaimed the woman.

"It's too bad I didn't bring a shotgun," continued Manogue.

"Tut, tut!" expostulated Casey. Then to the horrified woman:

"Will you have the kindness to go in and break it to him that Section 27 has called to pay its respects and to offer its services. Tell him Mr. Casey and Mr. Manogue it is."

The woman disappeared in obedience.

The announcement appeared to act as an immediate opiate. The awful discord of pain chopped off instanter and dead quiet fell upon the premises.

"I am mighty glad you called," said Mrs. Haggarty in greeting. "He has had no sleep last night and he is having an awful day to-day. You see, Tom can't bear pain—"

"Hey!" yelled the sufferer. "They don't care anything about that spiel. Set down, both of you. Set down."

He jerked it out like the commands of a boss to a hun-yok, then suddenly added:

"Oh! Oh! Wow!"

"You seem to have a little pain," casually remarked Manogue.

"Little!" exploded Haggarty. "Little pain! Listen to that! Don't say little! Nix on little. It's a brawny, burly, able-bodied pain—"

"Somethin' like the toothache I had," ventured Manogue.

"Toothache!" Haggarty spat it out with a sort of convulsion. "Hear 'im, Casey! Hear 'im, all of you, comparin' toothache to hip-gout! Do you know what hip-gout is?"

Haggarty glared at Manogue as if to defy him by any hocuspocus or legerdemain to produce the answer. Manogue was not equal to the challenge.

"It's neuralgia of the g-r-e-a-t sciatic nerve."

Haggarty gave "great" a hard, long-drawn emphasis as if the sciatic were the one important functionary of the body and all else were only tributary.

"Well, a tooth—" protested Manogue.

"There you go again!" roared Haggarty. "Why, a tooth's only as big as the end of your little finger, while this I got begins between the trochanter—think of that now! —the trochanter of the thigh-bone—"

"What's trochanter?" gasped Casey.

"It's the trochanter of the thigh-bone," shouted Haggarty, "and from there the pains go spreadin' like a fan all over the hips and the thigh-bone, and the legs, and the knee-joint, and the calf of the leg, and the sole of the foot to the end of the last toe, and then all the way back and then repeat, and then some more. And what's more, you can't have it pulled like you can an infernal tooth.

"Mary! Mary!" Haggarty snorted the name, and Mary sprang attention like one under military discipline. "Ouch! Easy now! Turn me a little, Mary. Careful, now! Careful, I say! Careful! Oh! Oh! Blank-blank-blank!

"Toothache's nawthin'! It is just a part of a pain. Just a little spot. Get the idea? Less 'an a inch, see? This hip-gout's three feet of pain. What's one inch compared with three feet?"

This question of quantity by lineal measure was fired direct at Manogue.

"There's one mighty fine thing about it," replied Manogue.

Then, addressing himself directly to Mrs. Haggarty:

"It don't matter how much pain he has, Mrs. Haggarty, Thomas will never whimper. He is not of the sort to make any fuss, Mrs. Haggarty. He'll bear it all and never let out a single howl. They ain't many like him, Mrs. Haggarty, when it comes to nerve and grit and dumb endurance—"

"Why, Mr. Manogue!" expostulated Mrs. Haggarty.

"Mary! Mary!" shouted Haggarty. "Ain't it time for them bitters? Here, raise that leg up! Hey! Ho! Hold. I say let it down! Easy, now; easy! Up—up—inch or two inches! Git another glass of water, Mary—"

"Either of us will come and stay all night to-night if we can do any good," volunteered Casey.

"We don't need any one!" vociferated Haggarty. "If we hafto have you we will let you know. Mary, Mary!"

"I'm glad to know, old scout," said Manogue warmly, "that you are bearing up under the pain so patiently. I want to tell you that there ain't many that can do it. There ain't one man in ten that's laid out with a bum leg like you got, but what would raise the roof and set his wife crazy—"

"Raise that a little, Mary. Hang-dang it, I said lower it! Can't you understand anything?"

Manogue let out an audible chuckle, and which drew a look from Mrs. Haggarty as if he had profaned the sacred Temple of Pain.

"I was just a-thinkin'," he went on to explain, "of a remark Haggarty made to me whin I had the toothache. Says he, 'What if you was a crocodile?' I couldn't help but think I ought to ask him, 'How with all this leg misery, how he would like to be a centipede?'"

Haggarty was beyond the zone of flippancy.

"I'll send for you, if— There, Mary—Mary! I say I'll send for you— An inch lower—there, now. Hold on! Ouch! Sufferin'— Didn't I say don't touch it?"

Casey and Manogue went away, but Manogue returned a little later. Haggarty's squeals enticed him back. Perhaps he was a little fiendish in this, that he wanted to hear the full measure of the outcry and the hubbub that hip-gout was extracting from Thomas J. Haggarty, the Disciple of Zeno.

"For Heaven's sake!" exclaimed Manogue to the woman attendant who met him at the door. "Is the steam still up in the calliope?"

"Oh, Mr. Manogue!"

"What they doin' to him now? Are they amputatin' his leg with a cleaver and a cross-cut saw? Go in and tell him his partner, Michael Manogue, awaits without to be of service in his hour of sufferin'."

The woman obeyed. At once the uproar stilled to a dead calm. In another moment she returned.

"Don't be mad, Mr. Manogue, but he says to tell you to go to the deuce—he's that cross and ugly!"

There came a savage call for the woman, and she disappeared, only to reappear a moment later.

"He says to tell you he's dead, or will be by the time you get to the toolhouse. He says he won't last more 'an hour, and for you to dig out and break the news to Casey."

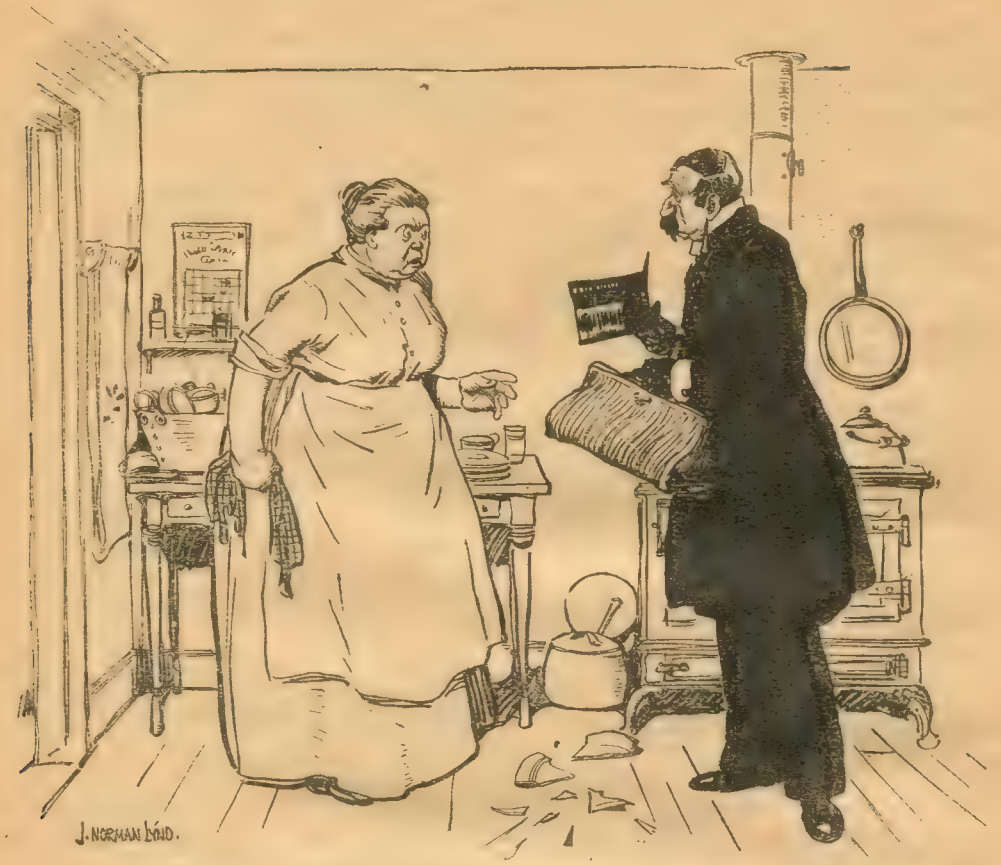
"It's a sad blow," replied Manogue. "Tell 'im I'll see to all the little details, and that Section 27 will see that he has a standard wake."

Manogue bestowed a solemn bow and departed.

Evidently he did more.

Within a half-hour an undertaker drove up and made formal entrance with an em-

"IT'S A SAD BLOW," REPLIED MANOGUE. "TELL 'IM I'LL SEE TO ALL THE LITTLE DETAILS, AND THAT SECTION 27 WILL SEE THAT HE HAS A STANDARD WAKE."



AN UNDERTAKER DROVE UP AND MADE FORMAL ENTRANCE WITH AN EMBALMING-KIT.

balming-kit, only to come out precipitously in confusion and apology.

The neighborhood heard the news that Haggarty was no more, and soon flocks of the meddling and morbid and curious infested the premises, only to scatter thence on arrival.

In the afternoon there arrived a huge bouquet made of twigs, boughs, burdock, jimson, thistle and other things that grow wild or otherwise along the right-of-way, and that lent color and variety of shape. The mass of foliage was delivered by a special messenger, and it bore a card—the top of a shoebox—with this tender inscription in pencil:

From the Gang of Section 27.

Haggarty revived. The next Manogue heard from him, he was better. The doctor who attended him said he had only a light attack—a little severe perhaps, but nothing serious. Haggarty took high offense at this, and retaliated by paying the bill at the rate of one dollar per month.

It was not long until he reported for duty.

There is an old superstition in railroading that when there have been two wrecks there will be three. Thus by the same token or necromancy since two afflictions had visited the working force of Section 27, another, the final third, was to be expected. Whereupon, Casey, the foreman, to sustain all traditions and maintain all precedents, smashed his thumb with a hammer.

The blow split the end of the thumb, and blackened the nail.

The sudden sting of pain did not find Foreman Casey with any ready theories on tranquillity and composure for the event. It was too hot and intense for any illusions. He hopped about in a circle, clutching the lacerated digit with the other hand. In torture and torment he howled loud enough to

be heard to the other end of his section. He used hard, harsh words that did not have the spiritual fiber of "ding-bust it" or *"donnerwetter und blitzen,"* and which cannot be printed until magazine leaves are made of asbestos.

"I hate to see any one carry on like that," exclaimed Manogue, "when it's only a little hurt! Now, if it was a tooth—"

"Or hip-gout," put in Haggarty.

Both of which inferences were that Casey would then have something to howl about.

Very soon thereafter, as the gang was slowly pumping along to work, it passed a house close to the track where there was an unusual stir and commotion.

The hand-car stopped and Casey called out:

"What's the matter?"

"Gasoline stove blowed up," explained a man who had just hurried up. "The fire's out, but the woman's got some bad burns. Don't see how she could 'a' been so durned careless with gasoline. It's a wonder she wasn't burned up."

The gang went over to the house, where they looked upon a poor, slight, weakly little woman with an arm shockingly burned. Some ever ready ignoramus had poured turpentine on the wounds in the interval of the doctor's arrival.

The woman suffered intensely. No doubt of it. Her face was drawn in tense agony. She looked up at those about her in mute appeal, but she never uttered a whimper. She bore it all with a fortitude that was beyond any understanding.

Casey, Manogue and Haggarty looked at the burned flesh of her arm, then into her thin, impassive face. They gazed mutely upon real stoicism. They had the strength of robust manhood. She of the weaker sex seemed made of infirmities and imperfections.

They went away in silence, and they pumped out to the day's work at the far end of Section 27.

"I can't understand it at all, at all," said Casey thoughtfully. "They were awful burns. She looked frail enough to be crushed with a finger. But she never let out a groan. Not wan, not wan—not a single wan!"

"Women's that way," explained Haggarty.

"Man's not; that's a sure shot," added Manogue.

To this they were all agreed.

WOULD YOU GIVE YOURSELF A JOB?

JUST be boss for a few minutes—then check up your record for the past month as employee. Remember, now, it's your money meeting the pay-roll. If you applied to yourself for a job would you get it? Have you produced enough in the month to make you a profitable investment? asks an exchange.

Have you asked questions and improved—or have you been too wise to learn?

Have you, as an employee, filled your hours with productive, conscientious labor—or have you been too busy watching the clock?

Have you put your shoulder to the wheel—forgotten petty differences and difficulties—or have you put sand in the bearings?

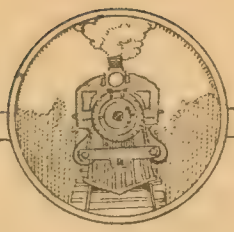
Have you analyzed what you are doing, and why, or used instinct instead of reason, and got an indifferent and methodless result?

Have you allowed your mind to become poisoned with anger, worry, or envy, and by so doing contaminated and reduced the efficiency of others?

Have you been heart and soul in the work—on the job every minute with a breadth of vision that made of the desert of work an oasis of opportunity?

Have you gone through the month, a vision of pay-day the oasis in your desert of work? And have you let this vision shut out from view all else in the work that would build you to a size where you would give yourself a job?

Check up. Be truthful. Would you give yourself a job?



HOW DO YOU STAND WITH YOURSELF?

BY CHARLES HEDDON.

IT'S easy enough to bully and bluff
And jostle and fool the crowd,
To cheat the game; to win a name
And hold your head up proud.
To beat the rush, to mush and gush,
And cash in for the pelf;
But the question comes, and ever runs,
How do you stand with yourself?

MANY a man can tie the can
To every opposition;
Can double the wo of every foe
And rise to high position;
Can steal the dough and make it go—
But with honor on the shelf,
What hope have you, my wise "gazoo,"
Of being a friend of yourself?

MATERIAL things so rarely bring
The happiness we sought;
The cherished prize, before our eyes,
Proves not the thing we wrought.
To stack the cards against your pards,
T' betray some fair commission,
Brings but the grief of meanest thief—
But wo and self-derision.

SO use good care and play it fair,
Cheat not yourself or others;
The blow we aim to kill and main
Wounds us, much less our brothers.
To play it square and always dare
Be firm and fair and true,
Is the only way to win the day,
An' make you a friend of YOU.

UNCLE SAM'S TELEGRAPHY.

Each Department Has Its Own System—Country Now So Enmeshed with Land Lines That Inventors Are Turning to Wireless.

U. S. HAS ABOUT FIFTY RADIO STATIONS.

Aerial Antennæ Have Crept to Jolo, Samoa and Peking, While Plant at Circle City Could Have Talked With Peary at the Pole—Apparatus Plays Important Part in National Defense—Civil Service Offers Operators Good Pay and Sure Advancement.

BY SAMUEL W. BEACH,

Author of "Locating Leaks in Submarine Cables," etc.

N the operating-room of the Western Union Telegraph Company in Washington, and located a trifle out of line from its neighbors, as if endeavoring to hold itself aloof, is a long table, bristling with telegraph apparatus that click and clatter, some in a high falsetto, others in deep basso. The telegraphers have nicknamed this table the "Irish quad." Wars have commenced and terminated by commands of this click and clatter; and political, military and civil careers made and unmade. Two squares away is a twin brother to this "Irish quad," in the office of the Postal Telegraph-Cable Company; and it, too, has molded destinies.

The Irish Quad.

At one end of this table is a small switchboard, closely resembling a hotel telephone switchboard. An attendant sits attentively before it, and ever and anon as tiny lights flash up, he "plugs in" some operator seated at the table. He is "plugging in" one of Uncle Sam's offices. Each of the great government departments in Washington has its own telegraph office, with individual wires leading like the spokes of a wheel to this common hub, and to its twin brother, two squares distant.

In general all government land-line telegrams are sent to the Irish quad, and from there relayed to their respective destinations; but should the Weather Bureau so desire it may "talk" with Medicine Hat direct at a few moments' notice; the War Department may work direct with its forces on the Rio Grande, or Agriculture may flash a crop report to Shreveport.

During the occupation of Vera Cruz the Navy Department telegraph office was connected direct with the cable office at Galveston, an arrangement so complete that our troops in that Mexican city were in practically instantaneous communication with the home government, and so speedy that compared with it the telegraphs of European nations pale into insignificance. It has been reported, indeed, that during the Russo-Japanese War the mighty ukases of the Czar were "rushed" from St. Petersburg to Mukden "in less than twenty-four hours."

It is not that our electrical currents travel

any faster than those of other nations, for electricity speeds at 186,000 miles per second in any clime. But our system and methods are far different. There is no such word as delay when Uncle Sam is in a hurry.

The telegraph operators at the "Irish quad" are, of course, employees of their respective companies, each of necessity a first-class, "top-salary" man, for government messages are to a large extent written in unintelligible clusters of code letters, the proper deciphering of which admits of no errors. In the various departmental telegraph offices, however, the employees are Civil Service, with exceptions only at War and Navy Offices outside of Washington at army posts and naval stations, and even at some of these latter places the operators are Civil Service.

How Arlington Radio Station Is Worked.

Built within Room 273, Navy Department, Washington, is another room, its walls half a foot thick, its windows double and its door resembling that of a huge refrigerator. No sound can penetrate—nor emanate—and he who enters this room sees but three silent men seated before a weird array of wireless receiving apparatus. Two may be "receiving;" ever and anon these pause a moment to deliver a finished radiogram to an officer of the day, who is seated just before a tiny trap-window outside the wireless room.

A third operator may be "sending," but if so, where is the crashing noise of his spark-gap so familiar about other wireless sending-stations? And where is his sending-helix, his transformers and condensers?

They are not in sight. Indeed not—they are five miles away! He is "sending" over an ordinary land wire into an ordinary relay at Arlington, and this relay is automatically repeating into the wireless sending-apparatus at Arlington!

This unique arrangement is an innovation of the Navy Department which has been in use only since the fourth of October, 1915. It marks a long stride toward a maximum of wireless efficiency, for by its use the wireless staff is within a few steps of the office of the secretary, whereas—more efficiency—the mammoth engines and antennæ of our greatest wireless station remain upon the high hills of Virginia.

For "receiving," there is a network of antennæ over the State, War and Navy Building capable of wresting from the air the faint dot and dashes from Honolulu, or the far away hisses of the wireless station at Berlin.

The salaries of Uncle Sam's telegraphers are very good, and of late years their general rating among other government tradesmen has appreciably advanced. The entrance salary is seldom under $900 per annum, together with the privileges of thirty days' vacation with full pay, and an additional thirty days with full pay in case of illness.

The minimum wage at present in the War Department telegraph office is one hundred dollars per month, and that in the Navy Department eleven hundred per annum. There is no Sunday work excepting in emergencies. The day begins at nine o'clock in the morning and ends generally at four-thirty. Above all, the certainty of steady advancement is ever present.

Yet, it is said, Uncle Sam finds difficulty in securing capable telegraphers through the Civil Service Commission. Telegraphers throughout the country either do not know about these positions, or hesitate to undergo the necessary examination. It might be desirable here to state that examinations are held practically every spring and autumn in all important cities, and every citizen of ordinary age is eligible. A request to the Civil Service Commission at Washington will bring full information on the subject.

There never was a time so ripe with golden prospects for Civil Service telegraphers as the present. The Department of Agriculture is inaugurating a system of telegraphic crop reports which when in full swing will undoubtedly give employment to a small army of Morse men, and up in Alaska Uncle Sam will need men to man the wires of his now embryo railroad.

Chances With Alaska Railroad.

The War Department operates a telegraph system that nets in the farthest villages of Alaska. Its operators at present are enlisted soldiers. But the War Department is anxious to shift this burden upon the shoulders of the Post-Office Department, and when Congress says the word this will be done, and civilian operators must then be sent to replace the troopers. Congress may say this word very shortly. It very nearly said the word a little over a year ago.

No other nation is so completely enwebbed with telegraph and telephone wires as the United States. Owned and operated by private corporations though they are, nevertheless Uncle Sam may take them over in the event of grave necessity—could do so, as by a magic wand, from the Atlantic to the Pacific and from Canada to the Rio Grande within the hour.

And, thanks to American ingenuity, every telephone wire may become simultaneously a telegraph wire by a few simple couplings, so that while a general in his tent at the battle front is conversing over a telephone circuit with the department at Washington, his telegrapher at the same table—or soap-box—may be telegraphing the routine events of the day, also to the department, and also over the selfsame wire.

Thus in practically no time the life-saving stations all along the Atlantic, Gulf and Pacific coasts which are now connected by telephone may become telegraph offices. This was done to a large extent along the Atlantic and Gulf coasts during the Spanish-American war, each station becoming a pair of eyes to spy out the approach of hostile ships.

Uncle Sam Hunting for Inventors.

We are told the old story of the troubles of Professor Samuel F. B. Morse in endeavoring to secure some sort of aid from Uncle Sam to promote the advent of his telegraph. He was universally looked upon with official frowns. This sort of procedure was the rule in those days, but not now. Uncle Sam now goes a hunting for inventors and carries them around on a chip, as it were, when he finds them. We have an Inventions Board in the Navy Department, with Mr. Thomas A. Edison as its chief.

And Uncle Sam is not neglecting the telegraph in his quest for something new under the sun. True, now that ten or more telegraphers and two telephone operators may freely work over one single wire without in any way bothering one another, and with the ample webwork of wires now strung, little is now to be gained by further development of land-line telegraph apparatus. So naturally Uncle Sam is turning his attention to wireless telegraphs and wireless telephones.

The result? A conversation was held between Arlington, Virginia, and San Francisco, California, without wires. Again Secretary Daniels, on November 5th, 1915, sat at his desk in the Navy Department, called up the commandant of the Brooklyn Navy Yard and issued an oral official order without using a long-distance telephone circuit.

What the future holds in store for us in the line of wireless achievements let no man be surprised at, for Uncle Sam is sparing no expense to penetrate to the soul the problem of harnessing the air.

Government Makes Money in Experiments.

And Uncle Sam is actually making money in this wireless telegraph and telephone experimental work. It costs far less to operate by wireless than by land lines or submarine cables. In 1914 Congress appropriated something like $1,500,000 for installation of permanent, high-power wireless stations and in addition $500,000 for their maintenance.

Already Uncle Sam has stations as far away as that of Jolo, only eight hours' slow steaming-distance from the northeast corner of Borneo, the land of the proverbial wild man; and had Admiral Peary possessed a wireless outfit he might have conversed while at the North Pole with the American army station at Circle City, less than twenty-three degrees south of the pole. Uncle Sam also possesses other stations that are out of the beaten path—at Samoa, halfway between Honolulu and Sydney, Australia; at Peking, China; Guam, Honolulu, Porto Rico, the Panama Canal, and other places. These are all permanent stations. Nevertheless, in a sense they may be considered experimental, for wireless communication is yet in swaddling clothes.

Now is the time for land-line operators to awaken to this new field of telegraphy—to get in on the ground floor, as it were.

Wireless a Strong National Defense.

Uncle Sam is not unselfish in furthering experiments in wireless. He has vast interests at stake. The wireless may prove one of our strongest national defenses. If so, it would appear that Uncle Sam has lost but few moments in preparedness, for whereas during the war with Spain he possessed not a single wireless telegraph, he installed three shipboard stations in 1899—on board the battle-ship Massachusetts, the cruiser New York and the torpedo-boat Porter.

To-day Uncle Sam operates approximately fifty wireless plants on land; and

two hundred and fifty on shipboard, the whole manned by some seven hundred and sixty wireless telegraph operators who are all enlisted soldiers or sailors. The first government wireless-telegraph shore station was erected just before the dawn of the present century on the grounds of the Highland Light-house at the entrance to New York Harbor. Its capacity would nowadays be zero alongside of many boys' amateur sets.

It is stated that even without the wireless stations planned by the government but not yet built, the completion of which will but strengthen the present apparatus, there is no spot in the two greater oceans too remote to escape the aerial wave of an American shore station.

Not alone is the nation's defense strengthened by Uncle Sam's wireless, but the nation's welfare and its citizens' pleasures as well. At high noon or at ten o'clock every night a jeweler in any part of the United States, or any farmboy who possesses an inexpensive "receiving" set, may set his watch from wireless waves sent out from the mammoth Arlington station. Absolutely no knowledge of the International Morse code is necessary for the reception of time signals.

At thirty minutes after eight o'clock each night this same mammoth Arlington station, with power to penetrate the ether in Europe, flashes slowly and distinctly a brief résumé of the day's world events—an inestimable boon to the ships as they silently plod their lonesome, pathless ways out on the Atlantic.

Few Civilians in U. S. Radio Stations.

There are few civilian telegraphers employed in the wireless plants of Uncle Sam. The army wireless stations are manned by soldiers of the Signal Corps; the navy stations by sailors, better known as electricians radio—and right here it may be stated with confidence that there are few careers for a poor boy more honorable or more promising than that of electrician radio of the navy. The boy may be sent to the navy wireless school at Brooklyn, where he is taught the science of wireless communication from A to Z; then he begins regular work and is promoted as fast as he himself elects by manifesting his moral and mental soundness, his willingness, and determination to "get there."

The army and the navy are not alone in government wireless work. The numerous coast-guard cutters, under the Treasury Department are equipped for ether wave communication, while the Bureau of Navigation, Department of Commerce, controls and regulates all commercial and amateur wireless stations in the country.

Watchful Eyes on Amateur Stations.

This bureau issues all licenses both for the operation of commercial and amateur stations, and for the operators themselves, and no ship which is equipped with wireless may put to sea with unlicensed operators. These men are required to pass an examination as to their knowledge of the theory of ether waves. They must know their apparatus, in order that they may repair breaks while at sea. They must be capable of receiving and sending at a fair rate of speed, and have a working knowledge of the radio laws regulating the methods used in communicating. In short, an American license means "Safety First" and efficiency.

Before the Department of Commerce undertook to regulate amateur wireless stations, many of the latter operated apparatus which sent out dots and dashes of long wave-lengths that interfered with legitimate commercial and government stations. Now, no amateur may operate with a wave-length greater than two or three hundred meters, whereas a wave-length of six hundred meters is minimum among the regular stations.

Arlington station operates three sets—one at six hundred, called the small-spark set; one at approximately fifteen hundred meters, called the big-spark set, and a third, known as the great arc, with a wave-length that may be read in Rio de Janeiro, Brazil, and in Cordova, Alaska. All three of these sets may be used simultaneously because of their varied wave-lengths, flatly disproving the theory of a few years ago that but one wireless station could work at a time.

Yet the solution is a simple one. The ocean, for example, is constantly moving up and down in mammoth swells, the length of which is often several hundred feet. Call these swells the long wave-length of the Arlington arc set. Upon the top of these ocean-swells, and rising up and down with them, are far smaller swells, called waves. Think of these waves as Arlington's big spark-waves. Then upon the top of these small waves are tiny, choppy ripples.

Think of these as Arlington's small spark-waves. Neither the ripples nor the small waves affect a giant ocean ship—but the ocean swells do. Likewise, the tiny ripples do not bother a rowboat—but the small waves do. But the tiny waves have their inning when a chip or a twig comes along.

So it is with wireless receiving. Three—and more—apparatus in the same room may receive simultaneously, each copying different messages, the apparatus of one being "tuned" like a big ocean ship, to be affected only by long waves or swells, the second apparatus tuned like the rowboat, and the third like the chip.

Rewards for Those Who Know Both Codes.

A striking example of "duplex" wireless telegraphing occurred in the morning of the first day of the Grand Army reunion at Washington. A flotilla of torpedo-boat destroyers was speeding up the Potomac River, approaching the capital. An order directing the commanding officer of the flag-ship where his ships were to anchor was flashed from the small-spark set at Arlington, and the officer's acknowledgment of the order was received, during which entire operation the big arc set at Arlington continued working with New Orleans.

The Department of Commerce issues a booklet containing the names and addresses of amateur wireless stations throughout the United States. Printed in small type, and covering about seventy-five pages, it shows forcibly that Uncle Sam may depend upon an army of wireless men should their services be required—an army by no means small.

But these men would be utterly useless on land lines. Nor would the army of land-line telegraphers now wielding the key be of any earthly use at wireless work. One reason answers this paradox. It is, that eight letters of the International Morse code, universally used in wireless service, are differently made from those in American Morse, or land-line work.

It would suggest that land-line operators should familiarize themselves with the wireless code, and that wireless operators should likewise master American Morse. The Department of Commerce realizes this, and endeavors to promote the knowledge of both codes by wireless men by offering an extra first-class license to wireless operators who are proficient in both codes, which license is highly prized and valued in securing the higher positions in service.

To him who desires to enlist in the navy as an electrician radio, and digs determinedly, the author knows of no unattainable positions in the service. Likewise, for him who desires to enter Uncle Sam's civil employ, and digs, a successful future cannot be doubted.

EVERYBODY KNOWS THAT:

THE man who says he isn't paid for thinking hasn't got brains enough to get paid for anything.

FROM THE RAILROAD MAN'S MAGAZINE.

HELP FOR MEN WHO HELP THEMSELVES.

NUMBER 69.

SIGNAL PRACTISE.

BY C. H. CLAUDY.

IN FIVE PARTS. PART THREE—BLOCK SIGNALS

"I'VE been reading up on signals and signaling," announced the Man Who Wanted To Know smilingly, as he greeted the Signal Engineer in the big and busy yard. "I know the difference between a block signal and a train-order signal, and that there is a thing called an interlocking system, though I don't know what it is, and—oh, a whole lot of things!"

"So!" answered the Signal Engineer, surprised. "Then you might start in and give me a definition of a block-signal system."

"Why, a block-signal system," returned the Man Who Wanted To Know, "is a system by which trains are kept from running into each other."

"That is certainly so," laughed the Signal Engineer. "But it isn't exactly an inclusive or all-embracing definition, is it? Suppose I am a brakeman on a train and the train blows out a cylinder head and the conductor sends me back a quarter of a mile with a flag or a torpedo or a fusee to signal the next following train to stop before it telescopes us—that is a signal system keeping trains from running into each other, but you could hardly call it a block system, could you? I'm afraid you didn't study to much purpose!"

"Well, why should I?" inquired the Man Who Wanted To Know, grinning impudently, "when I have a perfectly good and well-informed friend of a Signal Engineer who will tell me all about it? *You* give *me* a definition of a block system, then, since you don't like mine."

Is Elusive of Definition.

"You can't give it in a sentence," was the quick answer. "For instance, if you look in the Rule-Book of the American Railway Association, which represents the Law and the Prophets as far as railroads are concerned, you find, under definitions, this succinct statement: 'Block System—a series of consecutive blocks.'

"The definition the rule-book makes of a block is, 'A length of track of defined limits, the use of which by trains is controlled by block signals.' And when you look for their definition of 'block signal,' you find that it is 'a fixed signal controlling the use of a block.' So even the ultimate authority doesn't help you very much."

"Well, you are my ultimate authority. I don't give a hoot about your rule-book, that you seem to know by heart. Tell me, in simple words that the average man like me

can understand, what a block-signal system really is."

"It's a system of signaling, of train-rules and of railroad operation which displaces the time-interval system and substitutes the space-interval system," began the Signal Engineer. "When perfectly operated, it absolutely eliminates head-on and rear-end collisions, speeds up the safe operation of railroad trains and increases the number of trains which can be run at speed with safety on any given stretch of track in a given space of time. This decreases expense, freight rates and passenger fares, and, even in the manual or hand-operated system, to a large extent does away with the human equation simply by dividing responsibility among several brains and making them report to each other as they do their work.

Substitutes Space for Time-Interval.

"You see"—the Signal Engineer seated himself with his back against a semaphore mast and motioned to the Man Who Wanted To Know to take the "easy chair," which was a convenient pile of ties—"you see, the whole matter of signaling has been a growth. It hasn't been invented offhand and in its present state of perfection. And the greatest growth it ever made was when the time interval gave way to the space interval.

"The primitive railroad had one track and few trains. They ran according to a fixed schedule, with fixed meeting-places. No signals were necessary. But a delay to one train delayed the whole road. The telegraph and train-order eliminated that trouble, and the first signals were used—merely a flag displayed at some telegraph station meaning, 'Stop for orders.'

"Then came the regular fixed signal controlled by the operator, which is still used as the train-order signal, about which I have already explained. But the time interval system was found to be inefficient and insufficient when trains became numerous, and when speeds and number of stops and their consequent possible delays increased, not to speak of the danger of accident."

"You might explain that," interrupted the Man Who Wanted To Know. "Where does the danger of accident come in with the time-interval system?"

"It's like this," answered the Signal Engineer. "Train A, delayed, pulls out of Station X fifteen minutes late. Train B, arriving two minutes after, is held, under orders from the despatcher, for, say, seven minutes, giving Train A nine minutes' start for Station Y.

"But suppose Train A has a hot-box or blows out a cylinder-head or won't steam or breaks in two or is otherwise delayed between stations. Suppose the weather is very bad and the brakeman is inefficient and doesn't go back his quarter of a mile when Train A is stalled, but seeks shelter under a friendly tree. Then along comes Train B and goes slam-bang into Train A between stations and there is the deuce to pay.

"For this and similar reasons, the time interval had to go. Space interval took its place. For no matter how close two trains may be in *time*, if they cannot get within a specified number of *feet* of each other, it is obvious that there can be no collision. So the block-signal system in its most primitive form came into being.

"In such a system, the road is divided into spaces or blocks, at the junction of each one of which is a station or signal tower, a man, a signal, and a telegraph instrument. Let us suppose such a road fifty miles long with blocks uniformly five miles long, numbered one to nine. Train A starts from the terminal only after word has come from Block One that there is nothing in the block, or space, between the terminal and the block station. The train, then, can run at its maximum speed for those five miles. The engineer and conductor know that the line is clear and they also know that the signalman or operator at Block One knows they are coming and will, therefore, allow no train to enter the block 'against' them, or in the opposite direction. I am supposing, now, that the road is single track.

When the Schedule Counts for Nothing.

"Meanwhile Train B is scheduled to start from the terminal ten minutes after Train A. Train B, however, cannot start, as it could under the time-interval system, ten minutes after Train A, but must wait until the signal at the terminus drops. When it does drop it signifies that the terminus operator has heard from Block One that Train A has passed and that the block is clear; that is, that nothing is headed this way.

"If that signal doesn't drop, meaning that Block One hasn't sent in a message that Train A has passed, then Train B won't start, schedule or no schedule. Thus,

any delay which happens to Train A between terminus and Block One will prevent any other train getting on that five miles of track.

This Type of Signal Theoretically Perfect.

"The same course holds good for the whole fifty miles of track. Before Train A reaches Block One, Block One gets a report from Block Two. If the report is that Block Two is empty, and hence safe, he sets his signal at 'clear' or 'proceed,' and Train A dashes along past Block One Station without a stop. But until that word comes from Block Two, the signal at Block One remains obstinately at 'stop.'

"Block Two won't allow the train to proceed without hearing from Block Three that the track is clear, and so on. It is thus seen that ten trains can be on that fifty miles of track, all running rapidly in the same direction, yet none ever able to run into the train ahead of it. For the signal which lets it go promises five miles of clear track ahead.

"If there are only four miles of that track clear, the train has to wait.

"Now, as a matter of fact, this is all theory. Blocks are not necessarily five miles long, and modern block systems are seldom operated with trains only a single short block apart. Questions of the time a train requires to stop, or rather, the space in which it must run before it can come to a stop, the speed at which a signal works, the speed of a man's brain by which he can see and act on a signal, a safety factor, and things like that, operate in conjunction with an elaboration of the single signal into a duplicate signal, called the 'home' and 'distant,' to make the space between trains usually longer than the length of a block, in the theory, at least, of what is known as the absolute block system.

"On the other hand, what is known as permissive blocking allows two trains in the same block under certain conditions. But the theory, as I have stated it, has the merit of being simple to understand even if actual practise doesn't always follow it to the letter.

"Although I have stated the block-system idea in its simplest form, it has some curious ramifications. For instance, a very successful block system is operated abroad, and to some extent in this country, without any signals at all!"

"Without *any* signals? Why, you have just said that its use depends upon signals!"

"Not at all—its use depends upon authority to proceed," was the smiling answer. "But it isn't essential that the authority be given by a signal. It may, for instance, be given by a staff."

"A staff? I don't understand."

"By any tangible object, possession of which is symbolical of authority to proceed. As commonly used, a staff or rod is the symbol of authority. The staff-block system, electrically operated, as used to a large extent in England, has a 'staff machine' at every station. These machines have slots to receive staves and a key and annunciator for communicating with the next staff station.

"A train comes along to such a station and takes from the operator a staff. If the staff can be got from the machine, it shows that the train ahead has deposited its staff in the slot of the staff machine at the next station. If that staff has not been deposited, this train is unable to get a staff out of the box. And the engineer who dared run without a staff would not only lose his job but go to jail as a murderer in case of an accident.

"In this way the staff system has one great advantage over the signal system. There can never be any excuse of, 'Didn't see the signal,' or, 'Signal was set clear,' or, 'Weather was so bad I didn't catch it.' There is no excuse for running without a staff. Its absence means violation of rules; its presence, authority to proceed."

"But I should think that would delay trains terribly, having to stop at every station to get or deposit a staff."

"So it would, but they don't stop. The engineer of the train tosses his staff to the signalman as he goes by, and receives from him his new staff, either catching it from his hand, catching it in a bag, or by means of an apparatus similar to that used to snatch mail sacks from cranes as the express goes by.

Blocks Vary in Length.

"The operator then puts the staff he has received back in the machine, which acts electrically, allows the operator at the previous station to extract one for the next train, and so on and so on. Such a system is the one form of what we know as absolute block; that is, a mandatory arrangement by which never, under any circum-

stances, can two trains be in the same block at the same time.

"Of course, you understand that blocks vary greatly in length. On some of our far Western roads, with enormous stretches of track between stations, blocks are much longer than five miles. Close to cities where suburban traffic is frequent and heavy, and a great number of trains are in use, the blocks may be a mile only in length, or even less.

Distant and Home Signals on Same Mast.

"But they cannot be as short as the signal engineer pleases. Here again is a peculiar little kink of the signaling business. The length of a block is decided with reference to the physical characteristics of the road, the demands of the traffic, the size of the traffic, etc. Almost invariably, in modern blocking, there will be a home and a distant block signal, the distant signal repeating the reading of the home signal that the engineer may know in plenty of time what he is going to have to do when he reaches the home signal.

"It is common practise to locate the distant signal of one block at the home signal of the preceding block, so that the engineer is never without definite information in regard to the next signal. Now the distance apart any two trains can be should be as much as possible to accommodate the maximum possible traffic.

"The closer that trains can be run the more can use the track in the same time. On the other hand, they can never run closer than a certain space in safety. That certain space depends on the characteristics of the road and of the trains. And the space must be calculated for the fastest trains.

"The length of a block should be, according to one formula, equal to 'br plus t plus x.' 'Br' equals the braking-distance of the train; that is, the distance the fastest train using that track will require in order to come to a stop. 'T' is the distance the train will run at full speed while the engineer is acting on the instructions as given him by his signal.

" 'X' is a factor of safety. It is necessary because a signal arm doesn't move from 'proceed' to 'stop' instantaneously, and a second may mean a hundred feet, because not all engineers see signals or act on them as quickly as others, and because the braking-distance, predicated on brakes in perfect working order and air at maximum pressure, may sometimes be longer than it should be.

"Trains can and do run at full speed in perfect safety two blocks apart; that is, a full block, and the distance from home to distant, which should be and usually is a full block. They are safe because no matter how or where the first train stops, the engineer of the scond train will get a caution from his 'distant,' and bring his train under control before he gets the 'stop' of the next occupied block.

"Even where 'distants' are not a block from their home signals, they are customarily a long way off; the braking-distance of a modern train under emergency may be less than a thousand feet, but the thousand feet is much more practical.

"You understand, I am discussing theory. In practice we have to consider a block not only with reference to trains of one class and speed, but of all classes and all speeds. For instance, a signal never 'clears' at Block One until the last car of the train has passed the signal at Block Two. Take a freight, slow, heavy, deliberate, half a mile long, and it will delay traffic greatly by crawling past a signal and keeping it from allowing the 'home' behind to clear.

"Again, we have to consider grades when calculating braking-distance, and, in single-tracking, what is known as 'overlapping.' This matter of overlapping signals on single-track roads is a little difficult to make clear without diagrams. But I think I can do it if you listen carefully."

"Am I not a model listener?" countered the Man Who Wanted To Know, seriously. "You interest me, so I don't want to talk, and your knowledge makes me afraid to open my mouth."

How Single-Track Roads Are Made Safe.

"That will cost you a cigar," said the Signal Engineer, reaching out for the smoke. "Now, do some of that listening. You understand that in its simplest form the block signal on a single track prevents one train from running into another train *ahead* of it. But its simplest form on the single track is only theory, since no single-track road could exist with all the trains running in one direction. Therefore, signals must be provided which govern trains in *both* directions.

"I have already told you that signals govern a train when displayed toward the

right. And at first it was thought that a pair of signals, to right and left of one mast, was all that was necessary for protecting a single-track road for trains in both directions.

"However, experience soon demonstrated that this was not so. Two trains, running toward each other at sixty miles an hour may indeed get the indication of their respective 'distant' signals and slow up and come to a stop facing each other at their home signals, and no harm done. But if both went one feet beyond their home signals, when those home signals are located on the same mast, then there would be two busted cow-catchers and four sets of badly strained nerves in two cabs. And if each ran ten feet beyond their respective home signals, there might be four dead men.

"Hence the 'overlap,' by which the signals for trains in opposing directions are not always on the same mast, but 'staggered;' that is, so placed that when a west-bound train and an east-bound train are running toward each other, and both of them have to stop at home signals adjacent to each other, a distance of perhaps fifteen hundred feet separates them.

"This is a little point to tell about, and may perhaps seem unimportant. But the next time you go a traveling on a single-track road and sit on the rear of the train and watch the signals drop as you fly by, notice that there are posts on both sides of the track, and that one set will be always black and white and the other red, yellow or green. Notice the distance between any pair on opposite sides of the track and appreciate the fact that to save the possible collision two sets of masts have been erected for the single-tracking, expensive though it be, just to make the block system for the single pair of rails as effective as the single-mast, two-board signals of the double-track system.

Cost of Blocking Averages $1,200 a Mile.

"And don't sneer at the expense. Altogether, there are sixty-five thousand miles of track protected with block systems in this country. More than fifty thousand miles of it is single track. The average cost of blocking is more than twelve hundred dollars a mile; it may run into thousands in automatic and interlocking. So a hundred million or more dollars have been spent in making you reasonably safe, in expediting your speed, in reducing your rates; for signaling does all these things, as without it train-operation would be both slow and expensive.

"But to get back to my subject. I was talking, I believe, about the length of blocks. Of course, you understand that the shorter the blocks the slower trains must run. So the short block is especially suitable for freight traffic. But if we had only short blocks suitable for slow trains they would not contain of themselves enough braking-distance for fast trains. Hence, the actual lay-out of a block system, if done intelligently, and not by rule of thumb, must be, and usually is, a matter of continual compromise. One of these compromises is the substitution of permissive blocking for absolute blocking.

"Absolute" Blocking for Passenger-Trains.

"Permissive blocking allows a train to enter a block already occupied by a train, but with a caution that the block is occupied and that speed therefore must be reduced and the engineer must expect to stop. On most modern roads absolute blocking is used for passenger trains, no other train being permitted in a block with a passenger, but permissive blocking is resorted to for freight and work-trains, empties, single engines, and the like. You will find this all provided for in the standard rules for manual blocking, and the telegraph code—simplicity itself.

"The telegraph messages for block operation—manual block operation I am speaking of now—What? Haven't I told you that? Well, manual blocking is the system without any mechanical or electrical control beyond that of the message and the man's brains. It is the simplest and cheapest to install, needing only semaphores, a block wire, and operators. Controlled manual block I will tell you about in a moment.

"To get back to the telegraph messages: You may be interested to know that these messages are sent by means of numbers. The numbers are 1-13-17-2-3-36-4-46-5-56-7-8 and 9, and they are as well known to signalmen as your abc's are to you.

"The 'one' means, 'Display stop signal.' Note that the shortest, plainest number, first in importance, is for the mandatory stop order. 'Thirteen,' the reply to any blocking order, signifies, 'I understand.' 'Seventeen' means also 'Display stop signal,' but, further tells the operator, 'Train following.'

"'Two' means, 'Block clear.' 'Three' says, 'Block is wanted for a train other than passenger.' 'Thirty-six,' unmistakable with 'three,' is 'Block wanted for passenger train.' 'Four,' means, 'Train other than passenger has entered block,' and 'forty-six' says, 'Passenger train has entered the block.'

"'Five' is a reply, 'Block is not clear of train other than passenger,' and 'Fifty-six,' 'Block is not clear of passenger train.' 'Seven,' of course, is, 'Train following,' and you will note where 'seventeen' comes from. 'Eight' and 'nine' are opening and closing of block stations.

"In all properly conducted block systems, there is a record kept in each block station, by reference to which the operator can tell exactly what has happened all day long. The block record is the supreme law to the operator, having only the despatcher above it.

"If he gets, 'Thirty-Six for Eighteen,' which is, translated, 'Passenger Train Number Eighteen wants to enter your block,' he must examine his record. If the record shows his block is clear, he sends, 'One for Eighteen' to the next block in advance, which means, 'Set your signal at stop for opposing trains so Train Eighteen can proceed in safety.'

"Getting the reply, 'Two for Eighteen,' which means that the block is clear, or perhaps, 'Fifty-Six of Thirty-One,' which means, 'Block is not clear of Passenger-Train Number Thirty-One,' he sets his signals accordingly.

Many Records of Train-Movements.

"When a train enters a block, the signalman at that block transmits, 'Four' or, 'Forty-Six,' and the train number to the next block station ahead. When the train has gone by and he has carefully observed it for its 'markers,' he displays his 'stop signal,' for the normal position of all block signals is at stop. As soon as the train is well clear of the 'home' signal, he must give its record to the block behind.

"The signalman observes the train for 'markers,' which I have already told you about, because he must know whether the train has broken in two, whether it is a whole train or a section of a train, etc. If a train passes his block station without markers, he immediately notifies the block ahead, and the block cannot be reported 'clear' until it is known whether the absence of markers means a broken train or some one's mistake.

"Oh yes, people make mistakes. And signals break, and the block system fails, sometimes. That, too, is all provided for in the rules. For instance, in the Book of Rules you will find instructions for the use of the clearance card. It wouldn't do to tie up a whole system because a block signal refused to work, got frozen or was blown down. The clearance card acts just like a semaphore set at 'proceed,' the difference being that its use requires that the train stop, and the card be issued.

"Proceed" Cards When Signals Fail.

"In the same way, if a lonely signalman have acute indigestion or fall down-stairs and break his leg, the whole system might be tied up were it not for the caution card. If the operator at Block One cannot 'get' the operator at Block Two, and there is no known reason why a train shouldn't proceed except the failure to get in touch with the operator at Block Two, a caution card can be issued. No operator can issue a caution card without stopping the trains which must get it, of course, and none can be issued until the lapse of a certain interval since the passage of the last train. The interval varies with different roads and different conditions.

"Caution cards are simplicity itself in wording. They are directed to the engineer of the particular train on the particular track at that particular time. They read either, 'Block is not clear. You may proceed with caution, expecting to find track obstructed,' or, 'Means of communication have failed. You may proceed with caution, expecting to find track obstructed.' They are signed by the signalman.

"The clearance card says simply: 'Block is clear. Signal cannot be cleared. Proceed.' Inasmuch as it is a cardinal offense to 'run' a 'stop-board,' this clearance card is a necessity, and no engineer will move past a board set against him without one, or its equivalent in a train-order from the despatcher. He knows that if he 'runs a board' without authority he will be reported immediately, and that there are few breaches of discipline bringing more severe punishment than a failure to obey signals.

"But few men who reach positions of responsibility have any thought of disobeying signals. The 'surprise test' rarely shows a man derelict in obeying even the signal

which has no reason behind it. Yet the frailties of human nature do show up in the manual blocking system, and because—though it is far safer than simple train-order or time-interval schedule-running—it does fail at times, controlled manual blocking has come into use.

"The simple manual blocking fails because men don't always operate without error. And a signal system must be errorless. If a man has four hundred and ten signal indications to make during a busy day, he must make four hundred and ten of them correctly. He must read and interpret every message pertaining to those four hundred and ten signal displays correctly and must send his own messages with equal reliability.

"His entries on his record must be without any mistakes, and his apparatus must always be in such order that it never fails. Four hundred and nine perfect operations won't do. Pile this up day after day, week after week, month after month, year after year, multiply it by the number of blocks in a division, and you can easily see where sometimes the manual block breaks down. Men will dream, have accidents, make mistakes, go to sleep—sometimes.

"Hence the controlled manual block, which divides the responsibility between two signalmen at adjacent block stations. The controlled manual block system is operated by hand, and upon information by telegraph or telephone, just as ordinary manual blocking, but it is so constructed that the operator at Block One cannot display a 'clear' signal, even if he wants to, until the block ahead of him is cleared.

Minimizing the Likelihood of Error.

"This method of block signaling, of course, is more expensive to install than the simple manual block, for it requires more elaborate signal installations, and electric circuits and locking devices, which make the setting of one signal dependent upon the position of another signal. It represents a step in advance, and is the forerunner of the automatic blocking system, a wonderful thing, which I will tell you about later, but which is too big to go into now.

"In controlled manual blocking the apparatus is so constructed that any failure on the part of a signal or the signal system or circuits, will prevent any other adjacent block signal from being displayed at 'clear.' It thus automatically compels the use of the caution or clearance card, and relieves the operator of that much discretion, and consequently of that much liability to error.

"I have carefully avoided any reference to one of the most important adjuncts of block signaling—perhaps I shouldn't say adjuncts, but parts. For the interlocking system of switches and signals is so much bound up with ordinary signal and track practise on modern railroads that it can hardly be considered as adjunct, but rather as a component factor.

The Marvelous Machine, Interlocking.

"However, I haven't talked about it, because if I told you of simple blocking, controlled blocking, automatic blocking, automatic train-control, interlocking systems and interlocking machinery, detector bars and derails all at once I am afraid you would have small idea of the relation each bears to the other.

"So, if you are not entirely wearied of this exposition of signaling and signal practise, come over to-morrow and we will go around and see something of automatic train-control and the track circuit, automatic blocking, and what science and electricity together can do, when expense is not considered, to eliminate the human liability to error, while keeping the human brain in commission to plan and execute. And when I show you the interlocking, I shall show you one of the most wonderful machines in the world. Want to come?"

"I'll be there," answered the Man Who Wanted To Know. "Say, you signal engineers do have something else to do besides designing masts and signals, don't you? I always thought your job was a sort of glorified railroad-adjunct architect, but I begin to believe the civil engineer who builds the road has nothing on you, who protect it with signals."

"In which, my son, you show the dawnings of almost human intelligence," responded the Signal Engineer. "Ask any railroad builder which profession has made the most progress in twenty years, that of the men who build or that of the men who make the railroad safe and economical to operate—and I'll abide by his answer."

Next month Mr. Claudy, alias *The Man Who Wanted to Know*, will tell what he learned from the *Signal Engineer* about Automatic Signals and Train Control; and in July he will conclude the series with a paper on Interlocking.—The Editor.

HONK AND HORACE.

BY EMMET F. HARTE.

The Adventure of the Missing Freight-Money; or, How Honk Got That Goose-Egg on His Brow.

I SWABBED OFF THE GOOSE-EGG ON HIS FOREHEAD WITH THE SPONGE WE USE FOR GIVING FIRST AID TO SOILED WINDOWS.

NOW I've an idea, ma'am—and you, too, old top, both of you my loyal readers, who have stuck by me all these years—I say I've an idea you two will be surprised when you find that I've foresworn the field of serious, highbrow fiction, and have taken up this lighter line of adventurous stuff.

For one thing, you probably wouldn't think the daily lives of a couple of staid, stolid, sober-sided railway station men on a main line like the Transcontinental here in this highly civilized city of Valhalla, such as my phlegmatic compatriot, Hancock Simpson, and myself are — Where were we? Oh, yes, I say you wouldn't think we'd come in contact with much that was unusually exciting or adventurous; now would you? But that's where your expectations get switched into a stub siding with a derail at the end of it, which necessitates your backing out and coming again, seesto?

Why, adventures are piling up on us here that fast and furious we're all but swamped with 'em. Let me mention some just to exemplify. (These are culled at random as I ripple the pages of my note-book at break-neck speed.)

The Incident of The Mysterious Widow.
A Clever Ruse. The Tale of a Wire-Tapper.
The Adventure of the Busted Trunk.
The Ditto of the Weeping Wiper.
How Hunky Bowman Caught a Tiger.
A Knight of the Turntable.
The Strange Experience of a Hind Shack.
The Adventure of the Homesick Desperado.
Between Flood and Forest Fire. (A Hair-Raiser.)
The Incident of the Infernal Machine.
The Ditto of the Missing Manicurist.
The Same of the Poisoned Ham Sandwich.
The Startling Adventure of——

How's that, old top? Oh, all right, then, just as you say. I'll splash into this one without further delay, since you're disposed to get fastidious about the matter.

It was between six o'clock and midnight, P. M., of a certain evening. Awearied of rotation pool and the second-hand rutabaga fumes in my accustomed haunts (the Shoshone Billiard Hall, and the Lotus-Eaters' Smokehouse) I had turned my tripping steps homeward. Midway of the block whose northern facade is a brand-new galvanized-iron billboard, and at whose southern extremity stands the small brick office of the North American Rags, Old Iron and Rubber Co., Unlimited, suddenly an utterly profound and absolutely absolute darkness descended upon me. A black void so intense and complete as to envelop me wholly in a pall, a shroud, a deadly domino of gloom.

For an instant I thought I'd had a stroke of some kind. Vertigo, or blind staggers maybe, or worse. I've read of people being jerked into oblivion like that without warning, as also I've heard my good friend Doc Pillsbury cite cases with names a foot long where strong, lusty men, even as I, had been struck blind, deaf, dumb and tasteless in the twinkling of a twinkle. And the thought made me cold-sweaty for a second or two.

But even as my stout heart sunk within me I spotted the faint gleam of a star in the canopy overhead—the only one visible it chanced, as the sky was overcast with clouds. Anyhow, I felt reassured. Whatever the cataclysm was that had overtaken me, it wasn't blindness.

And then a misstep off the edge of the sidewalk furnished sufficient jar to jolt a grunt from my throat; a grunt which mine ears caught as I spoke it. Ha, good! I wasn't deaf and dumb either, it seemed.

Half-mechanically I took a chew from my omnipresent plug. Good again! I was yet able to taste things.

When I had pinched myself, and sniffed the far-off, faint, elusive aroma of the packing-house borne on the wings of the vagrant breeze, I felt better. All six of my senses were still on the job.

I walked on again, with a hand thrown out warily forward and sidewise, like a cat's whiskers, to warn me of any impending menace that threatened. Meanwhile, I concentrated my marvelous mental processes in an effort to explain the phenomenon. Ah! I guessed it right off. Something had gone ka-flooie at the electric power-plant, and the city had been temporarily plunged in Stygian gloom. 'Twas as simple as shooting fish in a dry pond if only one kept his wits about him, and— Hush, hark! What was that?

It sounded like a sort of squashy, sodden, dull thud, as if something soft had hit something hard, and 'twas only a dozen paces or so ahead of me from the sound of it, too, if I mistook not. It was immediately followed by a gruesome noise that both thrilled and chilled me, as well as filled me with a mixed feeling akin to awe. As nearly as I could determine, the pitchy darkness, the sound was a moan intoned with a groan. A grisly noise in sooth, blawst me jolly ears if it wasn't.

I had an impulse to move off nonchalantly and rapidly in another direction, thus ignoring the sound entirely. I'm not one of your idle curiosity-seekers who go nosing into every piffling groan or moan they hear in the dead hours of night. Let the police attend to such things, I say. That's what we pay 'em for doing.

But whatever this thing was, it was in my line of march toward home, and I didn't purpose going ten or a dozen blocks out of my way merely to keep from infringing on the prerogatives of a lot of sleeping policemen. So I stole watchfully forward, with eyes glued on the impenetrable gloom ahead.

Sixteen and two-third paces onward I all but steam-rollered something; and the hand I had out in front piloting the way touched some object which was moist and clammy—something that grunted out loud at the moment of contact. I moved over some fifteen or twenty feet in the clear, and crouched, listening intently.

A voice spoke:

"Don't hit me," it begged. "Please don't hit me again."

Hully gee! Those whining tones were strangely familiar to me. But to make assurance sure I struck a lucifer. In its momentary flare I made out the figure of a tall man sitting hunkered up on the curbstone, holding its head in its hands. It was none other than my friend and coworker, Hancock Simpson, apparently in very grave distress.

"What's happened?" I demanded, coming nearer. "Are you sick?"

I lighted a second match.

"Why, you've got blood on your face!" I exclaimed, remarking a thin, sanguinary stream trickling from a large, goose-egg-sized contusion on his forehead.

"Is that choo, Horace?" he whined. "I

—I've been slugged. Holdups. Didja see which way they went?"

"Nup, I didn't," I confessed. "I didn't even hear 'em leave, let alone see 'em. How many were there, what did they look like, and what did they hit you with? Hadn't you better have medical attention? See if you can walk, old man. Lean on me," I advised as he tottered to his feet.

"Did they rob you of anything?" I asked as an afterthought.

"There must've been two or three of them," he deposed faintly. "One swatted me with a slungshot or something, and I knew no more till you came along. I didn't see what they looked like; it got dark all of a sudden. I"—he fumbled in his pockets—"I've still got my watch, I see. But—but—"

His voice grew hoarse with emotion.

"They got my pocketbook, all right. It had several hundred dollars in it—money for freight-bills I collected this afternoon. I'm ruined, Horace—ruined, ruined!"

The way he said it almost convinced me that he was indeed ruined beyond repair. I quickened my pace, shuffling him along at a limping dog-trot by a short cut across tracks to the Medicine House. Once I'd got him inside the car I lowered him into our easiest easy-chair and made a hasty but expert examination of his hurts, or at least such of them as were externally visible; his mental wounds due to the loss of his purse I let go for the time being. Contrary to my first fears, his skull wasn't fractured at all; it didn't even seem to be cracked, though 'twas somewhat discolored and swollen at the point of contact with the bludgeon or whatever his assailant, or assailants, had used to swat him with. But Honk has a hard head—I almost said a *thick* head. And his pulse, temperature, humidity, valve-action, ignition, air-pressure, and so forth, seemed to be, if not normal, at any rate so near it as to deceive a casual observer. I said as much.

"Don't look so glum," I said cheerily, after I'd swabbed off the goose egg on his forehead with the sponge we use for giving first aid to soiled windows and had bandaged his bean with a dish-towel. "You're not dangerously hurt. Buck up, my boy! Don't be a mollycoddle."

He sighed like an air-brake stabbed in the back.

"It's not the crack on the coco I'm thinking about, Horace. It's that pocketbook full of freight-money. That's what gets my nannino. It's a serious loss—"

"Ah!" said I, bustling to the phone. "I'll call out the village constabulary at once. We'll get Scotland Yard on the trail of these freebooters before the scent gets too cold for 'em. P'raps I'd better notify the newspapers, too—"

"One minute," he muttered. "Let me think, first, Horace. Doubtless you're aware how these things are looked upon, as a rule. When a man has the misfortune to be slugged and robbed of money that

I SLIPPED ON MY SHOOTING-CAP, RAINCOAT AND RUBBERS, AND ANNOUNCED THAT I WAS READY.

doesn't belong to him, everybody at once decides that he's faking. It seems to be generally taken for granted right off that the ostensible victim is only trying to hide the fact that he's got rid of the coin in some way he don't dare own up to—gambling, or raising Cain, probably—and then pretends to've been robbed. And that's doubtless what they'd say of me in this case, if we make a holler."

"Hum, ha!" I quibbled. "Yes; but you've that knob on the nut to show, you know—"

"The public never accepts such evidence, Horace."

"Er—well, then, what's to be did? The thief, or thieves, will get away while we stand here palavering. I tell you you can't get the sleuths out after 'em any too quick under the circumstances!"

My voice rose to a shout.

"You know what the proverb says: 'Procrastination is a dear school, but a stitch in time is worth two in the bush.'"

He snorted something that sounded like "woof" or "poof," and getting to his feet with an agility that was rather surprising in a man who claimed to've been slugged into a state of inertia a little while before, began arming and equipping himself.

"Come, Horace!" he wheezed. "Get your flashlight, air-gun and other gimcracks for the chase. We're going out to adjust this matter quietly ourselves. The police are mostly a joke, and if we noise this affair abroad it'll only be adding insult to injury—you aren't timorous about going out, I hope," he added, staring at me inquiringly.

"Timorous? Who? Me? Ha! Ha!" I chortled. "Hardly that, I trow, but I'm one that believes in making their head save their legs. Thuffore I'd like to know for my own information where we're going, and what you intend to do, before we start. Do we ride or walk? Is the expedition directed toward one specific objective, namely, the capture of the particular banditti who robbed you, or—ahem!—is it to be a general round-up of all the suspicious characters in this vicinity?

"I'd like to prepare myself according to whichever it is, you know. Your wise general looks well to his accouterments, not only as regards ammunition, but provisions, too, before launching an offensive movement of any importance, for the scarcity of shrapnel later might prove of lesser importance than a shortage in sandwiches."

Honk seemed impressed—possibly not so much with what I said as with the way I said it—but impressed all the same.

"Oh, well, bring a basket of lunch if you like," he snapped. "A knife and fork, and your mouth, are the weapons you're handiest with, anyway. But get a wiggle on you if you're coming with me. I'll show you what a sure-enough independent criminal investigation is like."

I made no comment. I suppose I was moved by a sort of curiosity to see just what a rank amateur like Honk would do when on the trail of regular crooks.

So, deftly assembling an emergency packet of cheese sandwiches, boiled eggs, pickles, and such like, and strapping on my shoulder holster containing my terrible air-pistol, I slipped on my shooting-cap, raincoat and rubbers and announced that I was ready.

Honk meanwhile had armed himself with his old-fashioned navy revolver, a large carving-knife, and target rifle, which latter we kept for shooting at cats, dogs, and rats, when same came pillaging or serenading round about. And then we sallied forth.

It was quite dark outside; in fact, it was very dark; I, for one, couldn't see why it needed to be so confoundedly dark, and I said as much. I even suggested that we go back and equip ourselves with a couple or three lamps, or lanthorns, as a means of telling whether we were going or coming, once we got under way; but Honk arrogantly relegated such an idea to the discard as absurd, declaring 'twould frighten away the quarry before we ever caught sight of 'em.

He said it was about as sensible as taking a brass band along to play ragtime while trying to catch a weasel asleep, or some such far-fetched comparison. I only made two or three more clever suggestions—getting myself snapped off at the shoe-tops for my pains—and thereafter I kept mum. But I figured that there'd come a time later when I could snicker up my sleeve, all right.

Honk's notion of scientific deduction, for instance, would have caused an undertaker to laugh himself to death. Briefly, 'twas viz.: From the location of the goose-egg on his dome he surmised that the bandit who'd biffed him was extraordinarily tall; and as his partner had doubtless slipped in under to abstract the purse at the same time, he naturally was a shorty of some note. Ergo

then, the parties we must seek were none other than Messrs. Long and Little, the famous "tall and short" men who footpad it merrily from one end of the country to the other year after year.

His plan of capturing the freebooters was amusing, too, to say the least. He said if we began at the outer edge of town and

Honk drew his blunderbuss and carving-knife, and got ready with his rifle as he tip-toed forward.

We made the first round of the city in something like half an hour, without flushing anything more suspicious than a strolling cur dog or two on their regular rummage of the garbage cans. One thing

OUR HAWK-LIKE EYES GLIMPSED TWO SKULKING FIGURES.

circled gradually inward to the center, we must needs finally surround and surprise our men willy-nilly, whether they would or no, in spite of themselves. They couldn't get away from it. I didn't call his attention to the fact that while we were beating the bushes on one side, the game would have every opportunity to make its hiatus on the other. No; on the contrary I merely nodded affably, and went on, munching a cheese sandwich.

Fifteen minutes' brisk walk brought us to the place where the grand, circular pot-hunt was supposed to begin. It was still as dark as a coal-hole full of black cats.

I ate a pickle.

soothed and sustained me; each succeeding circle we accomplished would necessarily be smaller than the one preceding it. Viewed mathematically, the longer we walked the shorter would become our circumambulatory courses of rotary locomotion. (Judgment, Boston!)

On our second whirl around the whizzicus, though, something almost happened. We stumbled over the slumbering form of the watch, as that sleepy wight sat soundly snoozing under the whilom shadow of a spreading telephone pole. The sluggard didn't awaken, however; if he had—but no matter, he didn't. Ten minutes afterward I bought a bottle of soda pop at an all-

"HANDS UP!" HE YELLED, TRAINING HIS RIFLE IN ONE HAND, HIS NAVY REVOLVER IN THE OTHER.

night apothecary's shop, and we drank two-thirds of it. The other third I dropped—bottle and all—in my raincoat pocket for future reference.

The next three circles were slightly devoid of adventure; about as exciting as sailing a barge o'er the storm-tossed waters of the Erie Canal, say. No—wait! We did think for a minute we'd struck a clue at the intersection of Ambrosia Avenue, G Street S. W., and Paradise Paseo (the latter is called Paradise Alley farther down).

Our hawk-like eyes glimpsed two skulking figures—one tall and one short—just entering the lighted space in front of the Five Points Moving-Picture Theatre, Admission 5 Cents. We hastened hurriedly thither, arriving in time to see a long-legged man accompanied by his ten-year-old son buying tickets for the next pie-throwing tragedy as depicted on the screen.

I knew it was the man's son because of a marked family resemblance between the two, as well as because I happened to know both of them by name. The father was named Jim Jenkins, and the son was called Jimmy Jenkins for short.

The sleuthing party came very near losing one of its brainiest members at this place; I have a decided leaning toward those pie-throwing films myself, b'jenks!

On our seventh trip around the circle we came upon Drs. Pillsbury and Mooney coming out of a flat together—probably from a consultation as to how much one of their patients had—er—that is, *what* the patient had, perhaps I should say. They seemed quite taken aback when they saw Honk armed cap-à-pie that way. All four of us belong to the same club, you know.

"Ha! What's up, Horace?" asked Pillsbury. "Been out hunting?"

"Nup, just going out," I replied calmly as I removed the husk from a boiled egg.

"There go a couple of tough birds, doctor," I heard him remark to Mooney, as we stalked grimly on our way.

During the ensuing half-hour or so nothing of importance transpired. The city seemed serene to the point of innocuous supineness withal. Crooks of any description whatsoever were as scarce as the proverbial hen's teeth apparently. As a matter of fact, we ourselves were about the most

desperate-looking persons abroad, so far as I could see. But then, it was a dark night, and dark nights hide the evildoer like a mantle if so be he desires to be hid. Anyway, our quest was momentarily narrowing.

There remained only four squares in the geographical center of the city wherein our quarry might be lurking, or else they had eluded us entirely, forsooth. I swallowed the final bite of my last cheese sandwich, and breathed freer. I felt that Honk's money was gone for good—or, well, if not gone for good, 'twas gone just the same, and he'd never see it again.

Umph! Of course, I felt sorry for him; but it served him right. 'Twould teach him to— Hist!

Muffled voices!

"Ssh!" hissed Honk—quite unnecessarily, as I was already ssh-ed into an immobile statue of one great, pricked-up, listening Ear. The darkness was absolutely intense. From afar off, as if from a great distance, there came the faint, elusive, rhythmic *"ting"* of a domestic clock striking the hour of two, or some such number. Stealthily I stretched out a hand, and by the sense of touch alone quickly ascertained that we were standing, by some strange freak of chance, directly alongside the brick office-building of the North American Rags, Old Iron and Rubber Company, Unlimited. 'Sblood!

And then you people dare prate to me about there being no such thing as the hair-raising thrill which comes with true Adventure, in this part of the country, any more—but Honk was speaking again, in a whisper so inaudible that I wofully strained my left ear trying to catch what he said. (I have since added an ear-trumpet to my regular equipment when on an investigation of this character.)

"Ssh! They're in this old shack here, Horace," he breathed. "Hear 'em? Ah-h! See that speck of light? It's a hole in the window-shade. Just a second till I take a peep—"

Any one whose hot blood has a tendency to boil over in a tense situation like this will readily understand how I felt, and sympathize with me, although I'm not particularly making a bid for sympathy. Far from it. One thing, I'd never make a good waiter; I'm too impatient. But I controlled myself with an iron hand and, while Honk was peeping, forced myself to chew and swallow a pickle.

"Ssh!" warned Honk again presently. "They're in there, all right, all four of them; and whaddye reckon they're doing?"

I was too busy gloating over the odds of 4 to 2, and congratulating ourselves on such a cinch, to hazard a guess as to what they were doing, so I refrained from discussing it.

"They're playing cards," he continued. "Gambling with my money to see who gets the whole of it, blast 'em!"

"I'll call a couple of cops," I offered readily. "We don't want to take any unfair advantage of these scoundrels, and no doubt they'd prefer to be pinched by regularly ordained officers of the law—"

"You'll do nothing of the sort!" growled Honk, I thought a little bitterly. "We'll have no big, bluffing bluecoats butting in here, and grabbing all the money in sight for evidence. We'll do this job ourselves. Get your weapons ready, and follow me."

I fancy I shrugged my massive shoulders, but 'twas too dark to see me do it.

"Oh, very well," I snarled back at him. "After you, my dear Gasbag!"

We then stole furtively in, Indian file, around to the front door. I divined that it was locked even before Honk noiselessly made sure. There was a gate in the high board-fence enclosing the yard, which was used for storing tall piles of iron scrap; this gate was secured by a chain and padlock, and the fence was a little high to climb with one's accoutrements on. We turned our attention to a side window in the shanty.

Aha, good! Our victims had neglected or forgotten to fasten its sash-lock. Your cleverest crook always overlooks some small detail that later proves his undoing.

It was only a matter of an instant, or hardly that, to slam up the window and leap into the midst of that den of desperados. Of course, I speak more or less with an eye to dramatic effect, since, as a matter of fact, the ginks weren't as desperate as I expected.

Honk leaped inside, and I thrust my head in immediately after him. The room, or chamber, in which we found ourselves was untenanted of thugs, but through the open doorway leading into a rear room, or compartment, the scowling visages of the outlaws could be seen gathered about a deal table whereon were heaped their ill-gotten spoils. in the pallid glow of a smoky oil-lamp.

The scene was indeed tough enough to suit even my ruthless, daredevilish disregard for peril in any shape or form, but I waited a few seconds, curious to see what Honk would do next. Apparently he was in a half-crazed state of utter excitement, and intended to see the thing through while he was at it.

"Hands up!" he yelled, training his rifle in one hand, his navy revolver in the other, and his carving-knife—er—that is, I suppose he had his carving-knife handy.

"Surrender!" I shouted hoarsely, thrusting the rest of me inside the shanty to follow resolutely in Honk's footprints.

A SECOND GOOSE-EGG, THE TWIN OF THE ONE HE ALREADY SPORTED, WAS RAPIDLY SWELLING.

Well, we took 'em by surprise, you can bet your bottom dollar. Their rout and demoralization was a sight to see. For not only did Honk have the drop on them in several places, but I was there to back him up, with a clear hand and a steady eye; and not only that, but a clever ruse occurred to me besides. I had two hard-boiled eggs in my pocket, left from my campaign rations, and with rare sagacity I grabbed these out and hurled them where the enemy was massed thickest with deadly precision.

The struggle was over in an incredibly short space. Somebody doused the glim, and there was a scuffling, scrambling sound as the back door burst open. Then we were alone.

Outside, the metallic clatter of tumbling junk resounded, mingled with grunts and a noise as of a fence being ripped asunder. This was followed by silence, punctuated only by Honk's asthmatic breathing, as he puffed like a puffin. I flashed my flashlight.

It was here that I discovered an odd circumstance, an inadvertence on my part, as it were. Instead of my terrible air-pistol, I held in my hand the pop bottle from which the last of its toothsome contents dripped as I trained its muzzle on the place lately vacated by our quarry.

Meanwhile Honk, with an eye to the main chance, was rapidly harvesting the money our adversaries had forebore to take with 'em when they left. With deft fingers he stuffed coins and bills uncounted into his pockets and, snatching the flashlight from me, peered agilely under the table for more.

I myself stood plunged in somber abstraction. I was puzzled. A fitful notion harassed me that I'd recognized at least three of the thugs; they bore striking resemblances somehow to certain inoffensive citizens of our city—gentry whose only dereliction, so far as I knew, was a penchant for the old-time, gentlemanly game of stud-poker. But I held my peace. The galoots were gone, anyway, and outer dark-

ness had swallowed up both them and their shortcomings even as Honk was absorbing their discarded money.

Silently we slipped out through the window by which we'd entered, closing it behind us. Honk strode forward with me close at his heels, Indian file. 'Twas still pitchy dark—like a charcoal etching on black velvet.

And then, suddenly, just ahead of me, there came a dull, sodden thud, as of a soft object striking forcibly against something hard and unyielding. Honk gave a sort of wheezy sigh, and would have collapsed like a punctured tire, only I caught him bodily.

"Don't hit me!" he mumbled. "Please don't hit me again."

I let his body slide to the ground, and rapidly drew my gun as a mysterious clicking noise sounded overhead. Then, abruptly, came light in dazzling, brilliant effulgence, as the electric street-lamp above us burst aglow. The city lighting-plant evidently was once more on the job.

And right there in front of us, where Honk had banged his head against it blindly, stood an ornamental, iron post, one of the series which were part of Valhalla's far-famed Great White Way. I looked from it to his shining dome, whereon a second goose egg, the twin of the one he already sported, was rapidly swelling. He'd been thunderstruck twice by the same lamp-post, I was convinced.

And then my hawk's eyes caught sight of a small, plump, dark-colored object lying on the ground near the curbstone. I picked it up, and quickly inspected its contents. It was a pocketbook filled with bank-notes. It was Honk's pocketbook, quite intact, where he'd dropped it, no doubt, when he collided with the self-same lamp-post earlier in the night.

Humph! And it had been a fine cock-and-bull story of a hold-up he'd cozened me with, i'faith!

"Here! Get up from there!" I ordered bruskly. "Here's your bally pocketbood, all safe and sound. I found it where you lost it. What you need is a stout string with a dog attached to the other end, to lead you around."

The mention of money worked like an incantation toward reviving Honk. He hopped to his feet with the enthusiasm of a grasshopper.

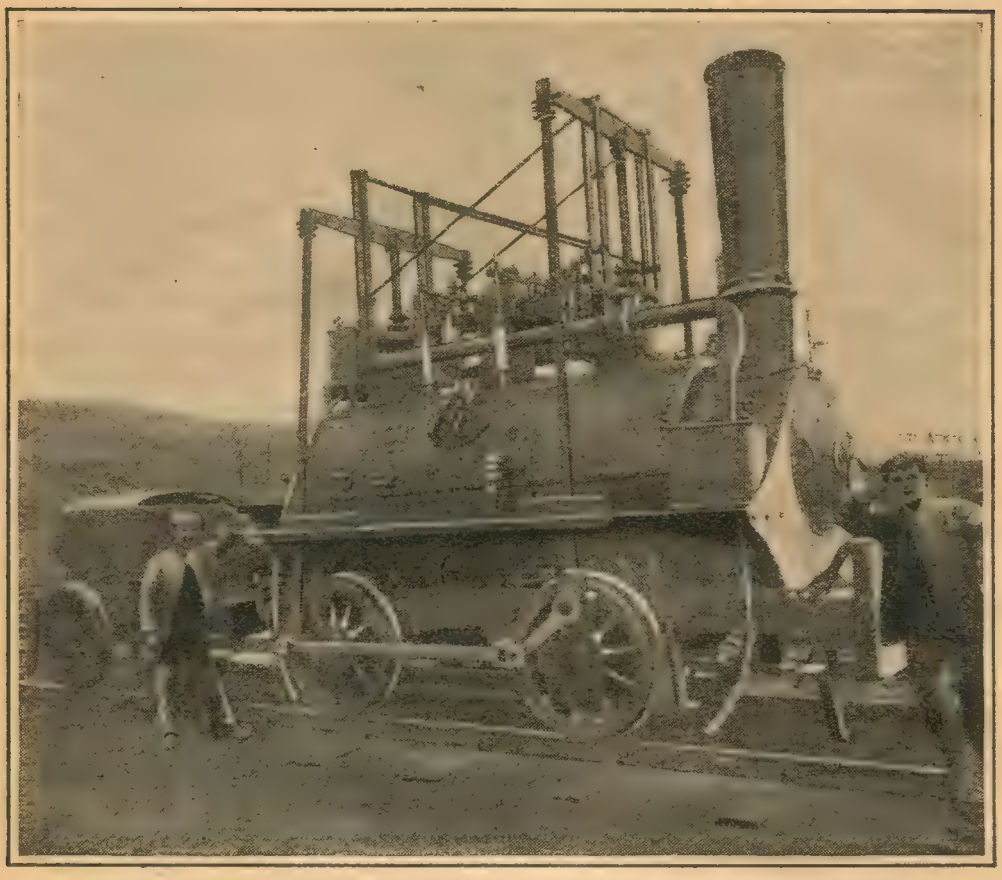
"Why—why—by Jove, Horace!" he said. "That's my pocketbook, all right, sure as the world. B—but what about this other money? What're we to do with it? 'Taint mine, and 'taint yours—"

"I guess it's tainted money, that's true," I retorted dryly. "We can purify it probably by turning it over to the Fund for the Indigent Poor. What ho, kiddo! The cocks are crowing for another day. Jove's on Olympus, and all's well with the world. Me for the hay!"

E. P. RIPLEY, President of the Santa Fe, says:

THE self-made man is not the work of one man. I desire to pay tribute of praise to her who joined her life to mine forty-four years ago and has since provided the comforts and the rest of a quiet home, who has twice accompanied me through the valley of the shadow of death, who has watched over me mentally, morally and physically, and who is mainly responsible for such success as has been mine in conserving mind and body.

from The Railroad Man's Magazine



WORLD'S OLDEST WORKING "HOG."

ALTHOUGH over eighty years old, this locomotive is — or at least until a year or two ago, was—still hard at work in a colliery in the north country of England.

Unquestionably this establishes its claim to the title of being the oldest locomotive that is still fit for service, even though a number of engines in museums or other refuges may antedate this old-timer in so far as years of actual life are concerned.

At various periods repairs and replacements have of course been necessary, but in all essential features it has retained its original characteristics. The locomotive is of the old " Puffing Billy " class, invented by that unfortunate man of genius, Richard Trevithick, and in service before Stephenson's famous " Rocket."

Trevithick, it will be remembered, was the first to employ a return-flue boiler and a steam jet in the chimney, as well as to couple together the wheels of a locomotive. For these reasons as well as on account of the fact that he realized that the friction of wheels on the rails was sufficient to allow cars to be pulled on ordinary grades—this, too, at a time when other inventors were occupied in devising a means of locomotion by utilizing the cog and rack—he is regarded in some responsible quarters as being the real originator of the locomotive steam engine.

The relic of the Trevithick school which is here illustrated will interest American readers from still another angle. The United States has many quaint old engines, but so far as the writer remembers, none of this class, with vertical cylinders on top of the boiler and connecting-rods driven from cross-bar crossheads.

OLD TIMES ON THE "GOULD S. W."

System Which Covered Country from Toledo to New Orleans, Laredo and Denver Was Once Biggest in World—Dissolved 25 Years Ago.

BIG MONEY FOR OPS IN THOSE DAYS.

Louisiana Lottery Flourished Then, and the Boys Formed Pools to Buck It—One Telegrapher Scooped in $30,000 on One Drawing and $15,000 on the Next—It Was on the Gould Lines That W. H. Boyd Developed Double-Order Method of Train-Despatching.

BY "J. E. M.,"

Author of "Old Times on the Erie."

THE Gould Southwestern System! How familiar that sounds to the old-timer of thirty years ago, and how little it means to the present generation of railroaders! True, there are the lines that are sometimes called the "Gould roads" to-day, but when compared with the old, well-beloved Gould Southwestern System of the early and middle '80s they shrivel into insignificance.

If I am not greatly mistaken, the Gould Southwestern System, as it was known, was at that time the largest system of railways in the world. That is, it controlled more miles of track and covered a larger area of territory than any other.

The system as it was then made up extended from Toledo, Ohio, on the north and east, to Laredo, Texas, on the Mexican border on the southwest, New Orleans, Louisiana, on the south, and Denver on the west, draining a more diversified country than probably any system of railroads to-day. This large combination, with the exception of one of its units, was under one operating head, located in St. Louis.

The exception was the St. Louis, Wabash and Pacific Railroad, or, as it is now known, the Wabash. This road, although an integral part of the system, was administered separately by its own general manager and other officers, although so well was the administrative machinery greased that it worked in perfect harmony with the other units of the system without the slightest friction of any character, and was, to all intents and purposes, a grand division of the whole Gould Southwestern System of railroads.

Blanketed the Southwest.

This system was composed of the following railroads: The Missouri Pacific and branches, reaching from St. Louis to Kansas City, Omaha and Denver; the St. Louis, Iron Mountain and Southern, running from St. Louis to Texarkana, Arkansas, together with its branches; the Missouri, Kansas and Texas, with lines running from St. Louis to Denison, Waco and Dallas, Texas; the Texas and Pacific Railroad, from New Orleans, Louisiana, to El Paso, Texas, with branches from Texarkana, where connection with the Iron Mountain was made, to Longview Junction, where they connected with

the International and Great Northern; the "Transcontinental Division," from Texarkana to Fort Worth, *via* Sherman, and the International and Great Northern, with lines from Galveston and Laredo, Texas, to Longview Junction, Texas, where the Texas and Pacific was tapped, and to Mineola, where the "Katy" was struck.

These roads, together with the Wabash, running from Toledo, Ohio, to St. Louis and Kansas City, comprised the great Gould Southwestern System of the middle '80s. Look at the map, even to-day, and see what an immense territory it covered, and what a practical monopoly it had in the Southwest. With practically no competition, the Gould Southwestern roads dictated the policies of more than one State.

As stated above, this whole system was under one general management, with the exception of the Wabash. The general manager at the time of which I write, was, if I am not in error, Horace G. Clark. Perhaps I err, and Mr. Clark came later, but I think that I am correct. His headquarters were in St. Louis.

Each of the several units of the system had its general superintendent, who reported direct to the St. Louis office. Thus, the headquarters of the International and Great Northern were located at Palestine, Texas, where Mr. H. G. Fleming was the general superintendent; the general offices of the "Katy" (in Texas) were at Denison, with Mr. J. W. Dickinson as general superintendent; the "Katy" outside of Texas was administered from Sedalia, Missouri, under a gentleman whose name I have forgotten.

The general offices of the Iron Mountain were in St. Louis, and I think that W. J. Sullivan was the general superintendent. The Texas and Pacific headquarters were at Marshall, Texas, under General Superintendent L. S. ("Charlie") Thorne. I may have the names of one or two of these officers wrong, but I am, in the main, correct.

Mr. Littlefield Had a Busy Job.

The headquarters of the telegraph department were nominally at St. Louis, with C. W. Hammond at superintendent of telegraph, but in reality were located at two different points, namely, Sedalia, Missouri, where Mr. Sheldon was assistant superintendent of telegraph, having jurisdiction over the lines of the Missouri, Kansas and Texas, north of Parsons, Kansas; the Missouri Pacific, the Central Branch and the Iron Mountain lines north of Little Rock. The real headquarters of the Gould Southwestern system's telegraph, however, were located at Marshall, Texas, where Mr. Walter D. Littlefield held the title of assistant superintendent of telegraph, and exercised authority over the Texas and Pacific, the International and Great Northern, the Iron Mountain lines south of Little Rock and the Missouri, Kansas and Texas south of Parsons, Kansas. Believe me, this was some job, too.

In those days, and on this system, the chief despatchers had nothing to do with employing the telegraph operators as they have to-day. This was all done from telegraph headquarters by the assistant superintendent of telegraph, and we considered it a very dull day indeed when we had not vacancies for at least twenty or twenty-five telegraphers.

Operators Were Better Paid Then.

Operators were not so plentiful in those days either. That is, the supply fell far short of the demand. Compared with to-day, with the high cost of living, the salaries paid were considerably in excess of those prevailing now. I do not know of an office on the system in Texas or Louisiana that paid less than sixty-five dollars per month, while in the yard offices and despatchers' offices and the relay offices the salaries ranged from seventy-five to ninety-five dollars monthly.

Taking into consideration that an operator was looked up to, respected, and that he was a welcome guest at the best hotels and boarding-houses at a rate approximately eighteen to twenty dollars per month, the operators of that day were much better paid than they are at present.

Another thing, too: I believe that without exaggeration, we had, on the Texas portion of the system, the very best railroad-telegraph talent to be found anywhere at that time, and I am quite sure it is unequaled even to-day, although everything was done with pen and ink—typewriters had not come into use to make first-class operators out of those who otherwise would have been impossibilities.

Such well-known talent as "Billy" Moore, now of the *Kansas City Star;* "Jack" Gibbs, of the *San Francisco Chronicle;* "Billy" Woods, since deceased; Otto Haney, now president of a bank in Fort Worth, Texas; Charles Worrell, deceased; "Jeff" Miller,

late vice-president and general manager of the St. Louis, Brownsville and Mexico Railroad, were representatives of the class that were in the employ of the Texas portion of the Gould Southwestern system's telegraph department under W. D. Littlefield in those good old days.

Even Crack Operators Sometimes Nodded.

Even with such an array of telegraphic talent in Marshall, errors would creep into our work sometimes. Some of them were of a ludicrous character and caused much amusement. I have one in mind which the redoubtable Jack Gibbs himself made. Jack was working nights in "Af" Marshall office. There had been a circus visiting the town that day; Gibbs had attended, and was interested in the animals. When he came on duty that night he was badly off for lack of sleep.

This, together with having his head crammed full of the acts which he had witnessed, and the strange animals which he had seen (in reality) at the show, had a tendency to make him somewhat careless, so that he performed his work in a more or less mechanical manner. Somewhere on the road there had been a freight-wreck that night, and Gibbs had copied the "99" reports until his head ached. Then came a message from a section foreman at Grand Saline, addressed to Tim Monaghan, at that time superintendent of bridges and buildings. The message as written, and, perhaps, transmitted by the operator at Grand Saline read as follows:

> Foundation under bridge No. T 100 very weak; threatens to collapse. What shall I do? Answer.

You may imagine Mr. Monaghan's surprise when he was handed this extraordinary message:

> Found a lion under bridge. Not well. Very weak. Threatens to collapse. What shall I do? Answer.

Mr. Monaghan looked blankly at the message, read it, turned it upside down, and read it that way. Then he peered at it over his glasses; then under his glasses, and then through his glasses. Then he exploded:

"So th' fool found a li-on undher a bridge, did he? An' th' baste is not well! An' it is wake it is, an' threa-atens to collapse! Phat have Oie to do wid li-ons, I dunno! Tell him to take his li-on to th' loive-sthock depa-artment, where it beslong, an' not to be botherin' th' depa-artment iv bridges an' buildin's wid such thrifles!"

Then it came out that Gibbs, working mechanically, as operators are known to do at times, receiving and sending by instinct, without a thing of what they are transmitting or receiving passing to their conscious brain, had separated the sylables of the first word, mistaking the letter "t" for "l," the difference being, as every one knows, that the "t" is a short dash, while the "l" is a long one. Thus the word "foundation" was received by the operator as "found a lion;" bridge "T. 100" came to him as "not well," the letters "No T" running together and forming the word "not" and the characters of the word "well" being the same as "100" when improperly spaced.

Of course, had Gibbs had his head about him, such an error would have been impossible. But, dopey as he was for lack of sleep, he worked like a machine, having no knowledge of what he was doing, not using his brain, and allowed the mistake to occur.

Cannon Ball Express—30 Miles an Hour.

The fastest train we had on the system in the south was the "Cannon Ball," made famous in song and story. I believe that there is still such a train running on the Iron Mountain. This old and original "Cannon Ball," however, was the real goods of that day and generation. It ran through St. Louis to Laredo, Texas, over the Iron Mountain and St. Louis to Texarkana, thence to the Texas and Pacific to Longview Junction, where it took the International and Great Northern for the Mexican border town.

This, in its day, was considered a fast train, making between 22 and 30 miles per hour. Considering the class of motive power we had to contend with the speed was really remarkable and says much for the men who pulled the throttles of these scraps of iron, miscalled engines. The schedule was fairly well maintained, the train rarely being more than a few minutes off.

Marshall, the Brass-Pounders' Town.

Marshall, as I have said before, was the headquarters for Texas and Louisiana lines. Here also was located the general offices of the Texas and Pacific Railroad. In the relay office, or "Af" office, as it was gen-

erally called, there were about twenty-five first-class telegraphers, besides three sets of despatchers, working the east and west ends and the New Orleans Pacific Division; their copy operators, and the yard operators.

In addition to these permanents, the town was fairly overrun with transients—those coming and those going; some just arrived from the North expecting to go to work, and those who had been working in the West or South and desired a change, or those who had quit and had come to Marshall for their time. For, be it understood, a telegrapher could get his time nowhere except at the office of the assistant superintendent of telegraph.

It was a pretty lively telegraph community, believe me, and many are the men who have risen into prominence, both in the railroad world and in other lines, who have at one time or another stood before the desk in the little frame cottage detached from the general office building, where Mr. Littlefield had his office, and exchanged pleasantries with that rotund, genial gentleman. More about him, I hope, in another article.

The Louisiana Lottery was in the heyday of its existence at this time. Almost every one invested a small portion of his earnings in the little slips of paper which, he fondly hoped, would bring him fortune if not fame. It was the custom among the men to club together and purchase a block of tickets, the "winnings" to be divided among the subscribers. There were never any "winnings," however, that I remember, to be divided.

One Man's Luck With the Lottery.

Outside of the pool, though, many men invested on their individual account. Among these was one whose name for obvious reasons I do not care to mention, but who is today well known and prominent in the railroad world. We will call him Jenks because that is not his name. He was a firm believer in luck in general, and his luck in particular, although up to that time we had failed to discover any visible signs of it. But, as the sequel will show, Jenks's belief was not unfounded.

Jenks was quite popular, although, strictly speaking, he was not a member of the coterie which foregathered at the Capitol Hotel for recreation. He had his mother with him, to whom he was devoted, she being a cripple and unable to walk. Jenks wheeled her about in an invalid's chair. One "drawing-day" of the lottery, the results of which were telegraphed all over the country immediately after the drawing had taken place in New Orleans, we were all gathered in the Western Union office uptown in Marshall, waiting for the numbers to come in. Jenks was among the expectant ones. As the number of the first capital prize of sixty thousand dollars was heard coming over the wire Jenks was noticed to straighten in his chair and to consult a little memorandum-book which he drew from his pocket. Then he smiled happily.

"Did you hit it, Jenks?" he was asked jokingly.

"Sure did," was the astonishing reply. "I hold half of that first-prize ticket."

The Loan That Gave Jenks His Chance.

And, sure enough, he did! And that was not all. Although it is a well-known saying that lightning never strikes twice in the same place, at the very next drawing Mr. Jenks held half of the second capital prize of thirty thousand dollars, drawing fifteen thousand dollars, or forty-five thousand dollars in all in the two drawings. This was enough to turn the head of an average man. But Jenks was no average man. He went on about his telegraphing as if nothing out of the ordinary had happened, drawing his seventy-five dollars per month, and still more attentive than ever to his mother, if such a thing were possible.

It was at that time that the first rumors of the proposed removal of the general offices of the Texas and Pacific from Marshall to Dallas were in circulation, and shortly afterward they were confirmed. A certain official—a good one, too, by the way, but notoriously improvident—upon the confirmation of the report that the general offices were about to be moved, approached Jenks with a business proposition, to the effect that if he, Jenks, would loan him, the official, a certain sum of cash with which to build his home in Dallas, he, the official, would use his influence with the general manager and see that Jenks was promoted to something better than he had at that time.

Jenks thought favorably of the proposition, and the loan was made.

Now, don't misunderstand me. Jenks had the ability, as has since been ably demonstrated, but he lacked the opportunity.

So he loaned the official the sum asked for, taking a mortgage upon the property to secure the loan. This official, true to his promise, used his influence, which was much, with Mr. Thorne, who had been made general manager of the road, being the first man to bear that title on the T. and P., and Jenks went with the officials when the offices were removed to Dallas, and was assigned to duty in the general manager's office.

Is Now a Millionaire.

Here he made such a good impression that he was advanced rapidly, and has since that time occupied many positions, both in the operating and executive departments of various railroads. He is now generally understood to be a millionaire, and an authority on railroad finance.

I do not cite the above as an argument in favor of "pull" being essential for a man's advancement or to attain prominence in the railroad game, but in this case it surely played a prominent part, and had it not been for these two lucky drawings of the Louisiana State Lottery, Jenks might never have been heard of outside of his own immediate circle. Such is the element of chance.

When the headquarters of the Texas and Pacific were removed to Dallas the telegraph headquarters of the Gold Southwestern System remained at Marshall undisturbed, with Mr. Littlefield in charge as assistant superintendent of telegraph.

Among the dispatchers located there at that time was "Tom" Coppage, now superintendent of transportation of the St. Louis and San Francisco at Springfield, Missouri. "Tom" was the most popular man on the division—and that's saying something when every man was popular—and upon his announcement to us one day that he had resigned to accept a position as chief despatcher with the Vicksburg, Shreveport and Pacific at Vicksburg, Mississippi, we determined to give him a send-off that he would remember for a long time to come.

And we did!

The celebration took the form of a banquet which was served at the Capitol Hotel, and was attended by representatives of every department of the road. So much was "Tom" thought of that all trains except the regular passengers and livestock trains were annulled in order that the men might be present at the "blow-out." I had the honor to preside at that banquet, and Marshall dated history for a long time from that event.

There was present on this occasion such men as Jeff N. Miller, then a telegrapher, afterward general manager of the Houston and Texas Central, and later vice-president and general manager of the St. Louis, Brownsville and Mexico; "Joe" H. Elliott, then a dispatcher at Marshall, later vice-president and general manager of the New Orleans, Texas and Mexico, and now general superintendent of the Texas and Pacific Louisiana lines, at New Orleans; J. H. Sugrue, then a despatcher, now superintendent of the Houston and Texas Central at Ennis, Texas; A. B. Richards, then a telegrapher, now general superintendent of the Northern Pacific at Paradise, Mont.; J. J. Kertin, then superintendent of the Eastern Division, later general superintendent of the Mexican Central lines; "Pete" (W. B.) Coppage, brother of Tom, then a telegrapher, now general superintendent of the Louisiana Railway and Navigation Company at Shreveport, Louisiana; A. B. Richards, then manager of "Af" office, now superintendent of the Postal Telegraph-Cable Company at Kansas City; A. H. Belo, Editor of the *Dallas News;* Fred R. Place, afterward superintendent of telegraph, then an operator; A. F. Addis, superintendent of motive power, and many others whose names have escaped me.

This was, indeed, a gala occasion. Should Mr. Coppage by chance see this article I am sure he will remember some of the many who were present—some of whom are in exalted positions, others of whom have signed their orders for the last time, and still others who are living somewhere in obscurity.

Enter a Boomer of the Boomiest.

I acted as chief clerk to Mr. Littlefield for a time. I shall never forget one day while seated at my desk, with Mr. L. at the other side of it, when a boomer of the boomiest blew in upon us. I knew he was coming long before he arrived. I smelled him. His breath was his announcement, aided by an indescribable odor as of hogs.

When I had opened the window and looked around he was standing in the doorway. And, believe me, I had seen boomers before in all their glory, but never one like this. He had a three or four weeks' growth of beard on his face, which had not been washed for fully that length of time, and

what clothes he had on were rags and were pinned and stuck together in some mysterious manner, and hung from his gaunt frame in tatters and streamers.

"Good Lord!" exclaimed W. D. L. "Look who's here!"

"Yes, I'm here all right, all right," responded the wreck promptly. "Just arrived on the New Orleans hog special. Car 2345 T. & P. Fine ventilation. Excellent scenery. Beautiful perfume. I'll recommend your road to my many friends.

He Was More Hungry Than He Was Op.

"But in the meantime," he continued, "to business. I am an operator—I may say, sir, that I am an expert operator. I say this without ego, but merely as a matter of fact. Besides being an expert operator, I am hungry. I am more hungry than I am operator, and that's putting it rather strongly.

"Being hungry and without the means wherewith to gratify that hunger, places me in an embarrassing position, and I am compelled to strike you two gentlemen for the wherewith. After I have dined I would interview you in regard to my future prospects."

Having delivered himself of this, he stood jauntily with his arms folded and regarded us from two bleary blue eyes.

After we had recovered our breaths we dug down—for W. D. L. as well as myself had a reputation that none went hungry when we could supply the food—and gave the man a dollar. He thanked us profusely, and, promising to return, went away.

In the course of a couple of hours he came back. Meantime he evidently had made an effort to cleanse himself as best he could, but nothing could better the clothes which he had on. We were so very short of telegraphers that we determined if he could telegraph at all we would use him.

Mr. Boomer Demonstrates.

There was no such thing as a physical examination in those days, and a man's personal record did not cut much figure either. What was required more than anything else was a man's ability to perform the duties he was assigned to, and it made no difference whether he performed that duty with one hand, or with one eye, or one lung, or how he did it, so long as it was done.

It was ability that counted, not past performances and perfect physical conditions. So we held our noses and sat Mr. Boomer down at the St. Louis duplex—the fastest wire in the State—and told Tom Mullin, the fastest-sending operator on the system, who was at the other end, to "shoot it in."

And "shoot it in" he did with a vengeance! Message after message poured in, faster and still faster, but never a break from Mr. Boomer. He sat with his legs crossed, and gripping a pen lightly between his fingers turned out those messages in a copy that resembled copper-plate. It was absolute perfection. After keeping him on the receiving-side for about an hour, we switched him over to the sending-side, where he was equally proficient.

We took up a collection, Mr. Littlefield heading the list, and secured enough to purchase him a new outfit complete from head to foot; got him bathed and shaved and fed him, and as we had no vacancy at Marshall just then, we gave him a pass to Jefferson, where he was to work a few nights until we could find something better for him.

A Good Op, but a Sleepy Traveler.

The next morning when I arrived at the office I found a telegram from Jefferson stating that Mr. Boomer had failed to put in an appearance—that the day man had been compelled to double up and work all night. Immediate relief was asked for. We wondered what had become of the man.

Two hours later came a message from Mr. R. B. Ayers, chief despatcher at Texarkana, saying that a man named Boomer was there, declaring that he was sent to Jefferson, but, falling asleep on the train, had been carried by. In the mean time we had sent another man to Jefferson, and having a vacancy at Mineola, we instructed Mr. Ayers to send Boomer there.

The following morning advices from Mineola said that he had not arrived, but a telegram from Fort Worth declared that he had gone to sleep on the train again and had been carried by. We next tried to get him to Baird, but we heard from him at Big Springs with the same story. Mr. Littlefield remarked:

"I'd like to get that man to a job once; I'll bet a dollar he'd give us good service."

And he did.

One of our operators at Marshall resigned, and we sent Mr. Boomer transportation back. He arrived in due season, and was put to work in our office. He has been with the Texas and Pacific road ever since,

or at least was up to a year or so ago. I saw him a few years ago, and he took me to call on his wife and family in one of the most beautiful residences in the city where he was located.

Prosperity had improved rather than hurt him, as prosperity usually does improve a man when it is the result of abnegation and hard work.

He told me that before coming to the T. P. that day in 1885 he had worked on nearly every railroad in the country, and had been kicked off of every one of them, and that Mr. Littlefield was the only man who would give him a chance. He said that he had crawled into a car loaded with hogs in the Fort Worth yards, destined for the New Orleans market, and had ridden with them to Marshall, from which point he came to us.

Mr. Boyd, "Superintendent of Despatchers."

The Gould Southwestern system had an officer, the like of which I had never before and have never since heard of. He was called "superintendent of despatchers" and had immediate charge of every despatcher on the system, including the Wabash. The position did not last very long, but before it was abolished the man who held it put into effect what is now known as the standard double-order system of train-despatching.

The man was W. H. Boyd, who after the position of superintendent of despatchers was abolished, was made superintendent of transportation of the International and Great Northern road, with offices at Palestine, Texas. This double-order system is in universal use to-day. It is brought up to date to meet the requirements of the period, of course; nevertheless it stands practically unchanged as to its major features, just as when it was introduced by Mr. Boyd, who thus may truly be said to have been the father of the double-order system. The last I knew of Mr. Boyd he was holding the office of chief despatcher for the Missouri Pacific system at Sedalia, Missouri.

System's Break-Up Began in Late '80's.

It was in 1888 or 1889 that the great system as it then existed began to dissolve. First the "Katy" was wrested from the hands of Jay Gould, and divorced from the system. Then the Texas and Pacific became independent, although remaining in the Gould family, and then the International and Great Northern was separated, setting up general operating offices of its own.

Although to-day a close traffic agreement exists between all of these railroads except the "Katy," the Gould Southwestern system as it existed in the '80's is only a memory. The Gould Southwestern, haven of the boomer where no questions were asked and only a man's ability counted; where a man might be a superintendent to-day and switching in the yards to-morrow, or *vice versa!* The good old days, when one man was as good as another, and sometimes better; where jobs were plentiful and the Southwest flowed with milk and honey. The time and the system alike are gone forever.

Howard Elliott, President of the New Haven, says:

YOU should not let the penny of error in the railway life of the country blind you to the dollar of accomplishment, without which the nation would not be what it is.

from The Railroad Man's Magazine

THE SIGNAL-TOWER GHOST.

BY OLIN L. LYMAN.

Dunton Used to Give the Ha-Ha to Tales about Spooks of the Wire—Until That Night at "W-K."

THERE rolled across the northern sky billows of sullen clouds. Upon wooded height and in the valley, across drifted road and storm-swept fields, about beleaguered farmhouses and over the frozen St. Lawrence sprawled tortured shapes of snow, whipped by a jeering wind. In the strident wail of this wolf-howl from the frozen north was the essence of melancholy, the fanfare of turbulent distress, the raging spirit that rides the storms of the Canadian winter.

The early dusk had fallen, and the station lights at Coveport flared as Dunton, the operator, and Agent Baker sat smoking their pipes in the office, whiling away the time with talk. The waiting-room was deserted.

"*Br-rrrr!*" exclaimed Dunton, leaping up and hurrying to the hungry heater in the waiting-room. "There's knives in your blasted Canadian wind! Every time a storm starts I think I can see Eskimos in the snow."

He replenished the stove and returned, sprawling in his chair and relighting his pipe.

"It's a wild section in the winter," responded Baker, glancing out of the window. "And I think we're due for a lot more yelpin' of the elementin' elements to-night. Sky's black as a soft-coal smudge, and we're due for cascades of snow as sure's you're born."

Outside the station the wind, rising again after a few moments of resting, whined querulously, and whipped viciously at the drifts of dry snow. Through the chinks in the frail frame building the entrance of icy drafts proclaimed a steadily falling temperature.

"Well, anyway," continued the agent, leaning back in his chair with his hands clasped behind his head, "you're from the States, of course, and it's your first winter in the wilds of the Province of Ontario, Dominion of Canada. So, whether you believe it or not, there are worse places than Coveport. How'd you like to be stationed at Watkins, for instance?"

Frank made a wry face.

"What, that woozy burg? I've been by it twice in the summer, and—no, thank you; not any winter in mine! Say, Baker, why would Watkins remind you of a nursery? Answer is because it gives you the creeps."

"That's fair for an amateur end-man," admitted Stuart Baker. "The boys all say the burg is haunted."

"Oh, say," laughed Dunton. "That's *too* good! We're living in this twentieth century, you know."

"That's all right," answered the agent seriously; "but there are such dumps. You can laugh all you like. The ops all hate Watkins. There have been a lot of queer yarns about doings around there at night—ghost engines and crews, and trains that faded while you watched."

"Good stuff!" yawned Dunton, lazily stretching. "Dream on, Stuart."

"They're not *my* dreams," retorted the agent. "I never passed a night in the place, and Heaven knows I have no desire to. But these yarns come from ops whom I personally know—fellows with good hat-rests."

"Hat-rests is good," approved Frank. "What are these horrible things that they say happen out at the Watkins station? Why gurgle generalities, Stu? Give your old side-kick a specific instance."

But there occurred a brief interruption, as Toronto, twelve miles away, was calling Coveport. Dunton, turning to the key, received the messages, which had to do with

delayed freights, and then faced about in his swing-chair toward Baker.

Stuart had been refilling and relighting his pipe.

"About these yarns," he pursued; "their name is legion, which phrase was first uttered by old Uncle Noah a reasonable time after he let the two rabbits into the Ark with the other animals. But here's the baby of the lot, a yarn that makes every op on the Grand Trunk look back over his shoulder whenever he happens to think of it in the dark.

"It happened only six months ago, the latter part of July. Joe Ketchle—you've heard of him; he's left the service and is somewhere up in Manitoba now—was shot out there from Toronto on emergency call to take the night trick. Now remember that Joe ain't a nut and he ain't a lusher. He's a good, straight boy.

"It's a short story. You can't go into particulars on it because there ain't any. All Joe knows is that he sat up in that lonely tower—it was one of those dark, blowy nights when your skin seems to want to crawl off you and go wiggling away somewhere—for hour after hour, watching the wire for orders.

"The hours dragged along, and Joe read and played his harmonica and hummed all the songs he knew to pass the time, and to drown out the squeaks of those darned little field-mice below that get a fellow's goat so. Finally—as he tells the story, and it 'll give you the willies to hear him—he sat back in his chair easylike, with his fins behind his head, and stared out of the window at some of the most depressing scenery on the footstool.

"There was a moon shining on it, which made it worse. Always liked to see the sun rise, Joe did; told me once that when he was younger he'd frequently stayed up all night to watch that little thing.

"Well, he watched the night sky gradually lighten up, and then in the east came the first faint glow of the good old bonfire, and Joe stayed right with Old Sol as he got on the job. And mind you, boy, the wire was dead all through this; not a tick since one o'clock in the morning. And when the sun had swung clear of the eastern hills, friend Joe, glad enough that another hour would see him on the way again toward Toronto, swung around in his chair and looked across at the board.

"You could have rolled his eyes for marbles and he almost dropped dead. He walked over there and picked up three orders—two '19's' and a '31.' There they were, taken during the night, right out of thin air with never the tap of a key, and with Joe sitting wide awake across the room, watching a live wire that was dead!

"He managed to come to enough to verify the orders; they were straight, all right. He looked at the 'flimsies.' He swears it was never his writing in the world. He didn't call Toronto; he said he was afraid if he told 'em a story like that, they'd send him to a nut factory. He told me it made him feel so queer for days that he thought he'd have his head examined, but he was gradually forgetting it.

"Now, what do you know about that? Do you wonder the ops hate that spooky station?"

There was a soft *swush* as a blur of snow, the vanguard of the storm renewed, dashed against the window. The wind rose and fell in an unearthly whine.

Frank had considered for a moment.

"Sure your friend Joe hadn't a bottle on his hip?"

"He hadn't taken a drink in years."

"Well, I have a theory for that, all right. Maybe he *was* a little queer, and took these orders without knowing it, and—"

"Nothing doing!" asserted Stuart positively. "Joe was the coolest, most matter-of-fact, absolutely normal duck you ever saw. And besides I told you it wasn't his writing. He says it looked like that spirit-writing you see at séances."

Despite himself Frank shivered a little. That superstition which is the heritage of railroad men in common with all the rest of humanity, however much the individual may laugh at and decry it, was stirring in his blood. Try as he will, your professional operator cannot escape it. Dealing as he does with the mysterious, intangible lightning essence that is flung through the singing wires, the invisible shade of the unknown lurks always at his elbow. But aloud Frank said:

"Well, Stu, your aim is pretty good, but I refuse to show you the whites of my eyes unless you materialize that ghost."

Suddenly at his elbow the telegraph-key began a brisk fanfare. Whirling in his chair he hastened to answer what he recognized as the despatcher's call:

"C-P, C-P—X."

Putting a weight on one sounder and

thrusting his penholder in another relay to deaden the concussion, Frank quickly answered, sending the acknowledgment over the vibrant wire to Toronto:

"I-I, C-P."

Then the chief despatcher himself—Frank recognized Luke Farrell's "fist"—clicked a communication that filled his soul with dismay:

"Dunton, how would you like to take a trip to-night to Watkins? No? I don't blame you, but we're in the soup. Roy Smith, the night-trick op there, has suddenly been taken ill, and I haven't an extra man I can send. You're the best man in sight, and I'm compelled to ask you to double-up to-night. Sorry!"

Aloud Frank said something emphatic, while Baker, an old-time op and knowing the code like the alphabet, voiced his sympathy in a prolonged whistle.

"I'm sorry also," clicked Dunton in response. "I'm sick, too, and this makes me sicker. I think I'm going to die. Can't—"

"Sorry again," came over the chuckling wire. "Wouldn't ask you unless I had to, old man. I'll send a hospital relief along with you. You'll find the key for the tower on the second step in the right-hand corner. Catch that 5.52; you haven't any too much time."

With Farrell's evening farewell, "G-N," the clicking ceased and Frank turned upon Stuart Baker a tragic face.

"Well, of all the double-dashed, triple-dented, sky-hooting luck you ever heard of!" he demanded. "Can you beat it?"

"No," consoled Baker. "Don't try. Duty don't give a continental for the comfort of a cuss. Life's a sad thing. The only optimistic op's in a padded cell somewhere. The 5.52's on time; she's due to whistle in a minute. Get resigned while I put this mince pie I didn't eat in your lunch-pail. Lucky you had a canary appetite this noon.

"And you're short on tobacco; here's my can. Got your harmonica? You'll need it out there; you can have the spooks eating out of your hand. They tell me ghosts like music."

The 5.52, the last passenger-train north that night, came thundering into the station.

"Here!" called Baker, preparing to go out. "Grab your things, boy, and hump! You can cuss Watkins for fifteen miles."

The scowling Dunton caught up ulster, overshoes, harmonica, lunch-pail, and tobacco-can, and hustled out to the train. He swung aboard the smoking-car, and conscientiously obeyed Baker's admonition to complain about Watkins during the halting trip to that desolate station.

It was half after six o'clock when the train reached the "burg" that was reputed among railroad men to be the most forlorn in Canada. There was but one saving element in the situation, which was that the storm which had been coquetting with the country for twenty-four hours had again ceased, at least temporarily.

As is the case with many "jerkwater" stations along the Grand Trunk, the community of Watkins was nowhere in sight. Far away on a distant hillside, and revealed in the moonlight which now streamed through ragged patches of racing clouds, stood a couple of white farmhouses. With the exception of the boxlike station and the tower, distant a quarter of a mile, these formed the only visible evidences of human life.

For the rest, spread around as far as the eye could see, were ghostly barrens, shrouded with snow, drearily flat, invested with the archspirit of depressing loneliness. A mile away to the north rose the sullen, forbidding, unbroken front of a virgin forest.

Frank hurried on in the sharp air—the thermometer had fallen nearly to zero—toward the gaunt tower that served as the signal-station at this forsaken spot. It was a long frame structure of barracklike appearance, containing two stories. Above was the operator's room, reached by a steep flight of stairs. In the compartment below were kept the coal, wood, and oil, together with other supplies for the signal-station.

Frank found the key in the spot indicated by the chief despatcher, and, ascending the stairs, let himself into the long, narrow room. The fire was low in the big, round heater found in all these country stations, but coal and wood were at hand, and he soon had the stove blazing. A moment later the wires were red-hot with the call, "W-K" (Watkins).

Dunton grasped the key and quickly answered:

"I-I, W-K."

The despatcher's further inquiry came sizzling in a fist that Frank recognized as Lou Halsey's. He was usually on duty nights at Toronto.

"How about the No. 8?" alluding to the

passenger-train that had borne the unappreciative Dunton to Watkins.

"O S—O S, W-K 8 B-I 6.29," Frank rattled in reply.

"Where's V-I?" asked Halsey, having reference to the night operator's personal sign.

Frank explained the circumstances of his assignment to the tower.

"Keep your ear on the wire to-night," instructed the despatcher. "It's highly important, as yours is the only office I can get for orders after midnight. Hawleyville is closed after eleven o'clock. In case we should have an order, do you understand about throwing the switch to swing passenger-train No. 4, due from the west at 5.40 in the morning, in on the passenger-siding to let a special by? We can't afford to have any greenhorn-work there."

Frank assured him that he was onto that little wrinkle, and then received further details of his possible duty.

Thomas Raffel, a Montreal millionaire, had received word that serious trouble had broken out among the employees of his giant lumber-camp up in the Sault Ste Marie region. If the lines were cleared sufficiently, he planned to charter a special train of engine, diner, and Pullman for the early morning and dash westward. The railroad people would oblige him, if possible, though they doubted, from indications, that the track would be cleared.

Frank was enjoined to watch the wire carefully after midnight for orders covering the meeting of the trains. Any balk would mean that Limited No. 4, carrying a long line of heavily loaded Pullmans from Toronto to Montreal, if given an open track would crash into the special, also rushing at breakneck speed, upon one of the dangerous curves that lay on either side of Watkins.

Dunton absorbed the information, and, with assurance that he would be on the job, the conversation closed. He then looked about to get his bearings. The train-order signals were at the other end of the long room. The stove was now roaring, red-hot at the center, but it was not any too warm to repel the stark cold outside, which sought to steal into the flimsy frame structure. Near the stove was a wide and inviting bench, upon which an op might stretch and relax if all was going well.

Suddenly a terrific blast of wind shook the tower to its frail foundations. Frank glanced out of the window, marking the location of the passenger-siding to which the despatcher had referred. It was some distance from the tower. He noted the switch, gaunt in the moonlight, which he would visit in case the order got through in the morning. He would receive the order at least an hour before the meeting of the trains.

Suddenly the moonlight was obscured. A bank of crested clouds was surging across the clear, cold, starlit sky like raging surf on hedging sands. A whirl of snowflakes attended this drive from the north. With a shriek like a banshee the storm renewed its attack upon the frozen wastes.

Disgustedly Frank shifted his gaze to a sight of cheer. He drew his chair close to the heater, and, lighting his pipe while he mentally blessed Baker for his forethought in the matter of tobacco, he gazed dreamily into the curling flames through the half-opened door.

Before long he was dimly conscious of the edge being taken somehow from physical content. In a few moments he correctly analyzed this discomfort. He was hungry. So he secured his lunch-pail, and left only the tin.

He refilled and relighted his pipe and sat at ease, smoking and dreaming to the last gray ash. He drew out his harmonica and exhausted his rather limited repertoire of selections. Then he rose and dumped more coal on the dulling fire.

He glanced at the big clock that ticked solemnly on the wall. It was not yet eleven o'clock—how the time dragged! It seemed as if he had been there years, as if he were the only living creature for miles and miles. He heaved a great sigh as he sensed why normal man is a gregarious creature, why when doomed sometimes to his own cloying companionship he passed successively from the stages of talking to himself and counting his fingers to that of being unable intelligently to do either.

The place *was* spooky! He scowled as he recalled the story Baker had told him of the ghostly message. He rather wished Stuart had not told him that yarn. The message out of thin air—why, it was preposterous! The op had been temporarily "batty" and taken the message himself, without a doubt.

But all the same, that was a deuce of a yarn with which to start a poor boob of an op off to Watkins on a raging winter's

night. Of course, Stu hadn't known then that he was going. However, if it had fallen that way, and Stu had time, he'd have told him with even crueler relish. He knew Stu!

Why, this wouldn't do! He was worse than an old woman; he was developing *nerves;* the dump was getting his goat! Bitterly he arraigned himself; he argued it out mentally; he told himself that he felt as chipper as ever. But he didn't, and he knew it.

He stoked up again and smoked furiously. Angrily he found his mind concerning itself intermittently with mild and morbid fancies. Then he would mentally slap his refractory imagination and jam it back in place, only to find it soon careering off again like a Salem witch rampant on a broomstick.

He had always laughed at ghost stories of the rail. But there now recurred to him the solemn words of many a grizzled veteran of the traffic, whose weird tales he had received with mirth:

"You give it the ha-ha, do you, boy? Well, I used to once!"

And now all these yarns of horror, invested with all the creeping fascination that attaches to the mysterious borderland across which the eyes of man are always peering with eagerness and reluctance oddly mingled, came winging in hordes to haunt him.

Oh, shucks! He was tired out, that was it, he grumbled. He would put down the pipe and stretch out on the soft side of that bench and relax. His eyes felt as heavy as lead; it was a rotten shame to inflict a double trick on a man. It was contrary to law and order.

Emergency be hanged! Emergency was another name for imposition. Why didn't they have a force of extra men large enough to care for demands of this kind? The Lord made man and then He rested. The op just happened along after that.

He rose from his chair, again replenished the fire, and glanced out of the window. It had ceased snowing, but a crazy wind was roaring with a maudlin delight as it lashed the new-fallen snow into fantastic drifts. Dunton walked over to the bench, carrying a leather cushion from a chair. He flung himself down with hands clasped under his head, drawing his ulster up over him to ward off the icy drafts which crept through every chink.

He resolutely thrust back the impulse to "hit a little hay." To be sure, the first click of the key—the op's alarm-clock—would waken him; it always had. But he could not afford to take the risk. No, he would lie and relax, and let the weariness get out of his bones, and then he would get up and smoke or play the harmonica or something.

It all seemed so useless! There wasn't a chance on earth of that special being shot out of Toronto. He wondered lazily who they'd send from the city to relieve him at Coveport the next day. For he was certainly due for the "big sleep."

The field-mice were at their infernal squeaking down under him. Nasty little things! He had often heard ops mention a destination where they might go, but they never did; they were always on the job.

And the wind, had it ever uttered so fiendish a series of yelps and yowls? It moaned about the tower, it whined in the telegraph-wires outside, it wailed as a lonely soul might wail if it were meted a solitary damnation. And as a final touch of wild and savage vociferation, there sounded from the adjacent forest, in the infrequent lulls of the wind, the demon jeers of hoot-owls.

Dunton's random thoughts now drifted dreamily out into the tide of lonely savagery that formed the tower's environment. Ghosts had ceased to excite his nerves; about them he now felt a calm curiosity. A smile twitched at his lips as he recalled Baker's quip about their eating from his hand while he played the harmonica. They had a fine chance, with not a crumb left in the lunch-pail! Gee! But he would stoke up for breakfast at Coveport in the morning!

Presently he thought dimly that it would be rather fun to visualize a ghost, and proceeded to do so. Nor was it long before he was on friendly terms with the shade, and invited it to share the bench with him. So the ghost lay down with its intangible hands beneath its cowled head, imitating his own position with monkeylike fidelity that made him laugh, and held converse with him. It told him of the days when it was a man, but its whisper was so ghostly faint that it could not catch much of what it said.

So he became bored and rolled over, determined to go to sleep and forget the ghost. But the ghost would not let him sleep. It

kept whispering in his ear, whispering terrible things which he could not understand, but which froze his blood. He placed his hands over his ears to shut out the sound, but it increased in volume. In growing dread he could picture the leering, shapeless face as it bent closer.

Now its whisper, grown sharp as the north wind stirring grave-grass, cut into his shrinking brain. It told him how it had become a ghost. It had been a man, an op on a railroad line. The man had slept at the post. Two trains had crashed into each other, bringing agony and death—death due to his mistake! He had fled; the officers had searched for him; they had found him dead by his own hand.

"So I'm a ghost," the thing gibbered, "a ghost in thin air. I'm cold and lonely. Other ghosts herd together; they fly away from me because I was a murderer. I can't be alone; I shall go mad. I must have company. You'll be with me before another night—for you'll be a murderer, too. Listen!"

In Dunton's ears dinned a growing, grumbling, thunderous roar. The ghost laughed frightfully.

"You'll be a murderer, too!" it mocked. "The trains, they'll smash into each other in a moment. The order, the order—*you forgot to open the switch!* Before another night *you'll be with me!*"

With a strangled cry Frank leaped from the bench as the ghost faded in thin air with a final horrible grimace. Dazed, terrified, midway between sleep and waking, Dunton reeled where he stood, blinking horrified eyes. There was no need of the flaring lamps now; dawn had burst over the eastern hills. Through the window he caught sight of a calm, pulseless, majestic expanse of snow. The wind, too, had gone like a dream.

Then, instantly thudding at his dulled consciousness, there grew two terrific sounds. The first was a growing, thunderous roar from the tracks below; the second was the mad rattle of a telegraph key.

Its staccato summons galvanized Dunton to life. His eyes widened with a horror of remembrance; they flashed to the clock on the wall.

It lacked ten minutes to six.

Like a madman Frank leaped to the instrument that was clicking its recurrent tocsin from Toronto.

"W-K, W-K, W-K."

His trembling hand fell on the key, while the roar below grew from out of the east.

"I—I, W-K."

"Is Raffel's special by?"

Dunton fell away from the key and went staggering across the floor, his hand pressed to his eyes. The special! The special! That was it! The awful thing the ghost had whispered. Even now it was thundering in to its doom! It would sweep by to meet the limited—that loaded line of Pullmans—somewhere beyond—two trains telescoped—death and agony and tears! Hark! There was not *one* roar; there were *two;* they were almost upon each other; he was a murderer, a *murderer*—

There was the faintest chance; he might make the switch in time; he might warn them; he might do *something.*

Without coherent thought he plunged toward the stairway. In the fraction of time required to descend it he lived a lifetime. He saw all who knew him recoiling from him as a murderer. He saw himself, crushed by the frightful weight of his blundering guilt, seeking annihilation. He saw himself, because of these twin sins, paired forever with the other alien soul that had whispered to him in the night, the ghastly soul that had laughed. For all eternity they would be together, welded by the red bond.

As he plunged down the last step he stopped transfixed, then leaned dizzily against the wall of the tower, his incredulous gaze busy with an inexplicable situation.

With a boom and rush and roar the Raffel special of engine, diner, and Pullman swooped by him, kiting to the west on a clear track at a mile a minute. And up the track, safely pulled on properly set signal on to the siding, with her engine lazily snorting, was Limited No. 4, from Toronto bound to Montreal with her long line of loaded Pullmans. She had evidently just made the siding, as the rear brakeman stood near the switch that he had just closed.

Frank watched till Extra No. 1399 had hummed out of sight. Mechanically he ascended the stairs.

What supernatural agency had saved him?

The continued angry rattling of the telegraph-key reminded him that the job was still of an earthly nature. Toronto was still jabbering away, demanding the fortunes of the Raffel special.

Dunton seized the key and clicked off the reply that stilled the clamor.

"Yes. O-S, O-S. Ex 1399 B-I 5.52."

He was beginning a stammering attempt to explain his delay, but the disgusted despatcher would not listen.

Frank turned from the key with a queer mixture of relief and superstitious horror. And now a fresh shock awaited him.

His eyes encountered an order lying on the desk, one he had not seen before. It was the "31" order which provided for the meeting of the trains:

Toronto, 4.40 A.M., January 12.
No. 4 meet Ex 1399 at Watkins.
F. G. A.,
Superintendent.

Frank read it, gasped, and sat down suddenly in the chair by the table. He stared at the flimsy.

The writing was not his.

Whose was it?

Could ghosts write?

Hurried footsteps sounded on the stairs. A tall, broad-shouldered young fellow entered the room. He walked up to Frank with outstretched hand.

"Hello, Coveport," he said. "It must have been a long night. I'm Hal Ostrander, the day-trick man. I done a deuce of a stretch of extra duty because of poor Smith's sickness, so the chief despatcher wired me to go home and sleep last night, and said he'd send you up.

"But I knew it would be a lengthy night, as it was an extra trick for you, too; so I got an early start this morning. I board at that nearest farmhouse up on the hill. Thought you'd like to snooze an hour before your train goes.

"What's the matter man? You look pale. Seen a ghost?"

"I don't know," replied Dunton slowly. "I don't know."

Ostrander stripped off his overcoat and threw himself in a chair opposite Frank. Dunton noticed that he looked pale and haggard.

The Watkins operator laughed shortly.

"It's a spooky place," he confessed. "I'll admit it gives me the willies; I'd like to jump it. I sit up here nights and mull till it seems as if I'd go off my bean—the noises and the yarns and all.

"You've heard that story of last summer—the '19's' and '31' orders? Well, it was true enough. I wasn't on that night; I'd been doing extra work and asked to be relieved.

"They sent a fellow from Toronto, and the ghost got in its work. He swears he was awake all the time. I guess it scared him stiff. I looked for the flimsies later, but he was so rattled he'd either mislaid or destroyed 'em."

He stared moodily out of the window while Dunton watched him. The eery atmosphere of the place, even in the fresh daylight, seemed literally to enshroud them both.

"I feel like the old Nick," pursued Ostrander. "I slept enough hours, but it hasn't done me one bit of good. I dreamed all night—the most outlandish things. One was a corker. I seemed to wake up with the feeling that something was wrong at the tower, and I thought I got up and dressed and waded through that blasted snow in the storm, and reached the tower and came up-stairs and caught the key clicking 'W-K.'

"And I answered it, and took some kind of an order about two fool trains meeting, and I went out and set the signal and threw a switch. And that's all. And I woke up this morning to find my coat and overshoes as wet as they were when I took 'em off at eight o'clock last night when I turned in. I can't understand that.

"This place is a jinx! What's the answer? Why, what's the matter, man? What makes you look so queer?"

Dunton leaped up. His trembling hand seized the flimsey. He thrust it into Ostrander's hand.

"Is that your writing?" he burst out.

"Why, yes," answered the Watkins operator wonderingly. "Where'd you get it? What about it?"

Dunton's look held awe as deep as any occult mystery of the night before could have summoned.

"Good Heaven!" he breathed. "It explains everything—last summer, last night. I was asleep last night—just as Ketchle fell asleep six months ago—and you were asleep, too. That's the wonder of it! You saved all those lives—you took that order, you threw that switch, and you thought you dreamed it.

"Man, don't you understand why I'm not a murderer this morning? It's because of you and your wet shoes and your mind on the job and your dreams.

"*You are the tower ghost!*"

TRIALS OF THE TICKET-SELLER.

Why Is It That, Whenever You Hit Upon a Question Which the Man on the Other Side of the Wicket Can't Answer, You Feel Entitled to Get Mad?

TERMINAL BOYS CAN'T BE STOPPED.

But When You Inquire From the "OS"er at Bingville-on-the-Blink as to the Best Way to Make Tuskaloosa, Alabama, and the "OS"er Has Nothing to Consult But a Dog-Eared Bulwer, That Is the Time You Have the Pasteboard Juggler Clawing for Air.

BY F. B. LOVETT.

IT is not often in the general scheme of affairs that we give our fellow man credit for knowing more than he is supposed to know. Usually we are skeptical as to the depth of each other's fund of knowledge and scope of ability. There is, however, one notable exception to this condition, one prominent character in the railroad lime-light who, apparently, is credited with knowing all things.

He is not the president of the road: neither is he superintendent, chief despatcher, or even section foreman. He is merely the modest, unassuming gentleman behind the ticket window. He may be stationed in the magnificent union depot where passing thousands present riddles of transportation to him from day to day, or he may be sole representative of the railroad company at Grocery Corners in the corn-belt.

Geographically speaking, it doesn't matter where he takes his stand. So long as the regulation aperture is before him and the inviting sign above it reads

TICKET WINDOW.

it is safe to assume that business will be brisk even if it is not always profitable.

The Germ That Knows It All.

The millionaire patron approaching the ticket window sees inside merely an industrial germ placed there for his convenience. He grants this germ, however, an almost infinite knowledge of transportation lines throughout the United States, Canada and Mexico. If necessity arises, he does not hesitate to seek information relative to the conditions of travel in Europe or any other part of the universe.

From the millionaire down to the humble corn-husker journeying from Grocery Corners to the county seat, the proportions of the problems presented to the ticket man gradually decrease in size and facility of solution; but the expectant confidence of prompt elucidation never wanes.

I have no wish to upset long-established traditions, nor detract a particle from the versatile acquirements of the ticket man, but as an ofttime suffering victim from this overconfidence, inherent, I may say, in the traveling public, I wish to protest that the ticket man does not know everything. In making this statement, I fancy I can hear an echoing chorus, earnest in its intensity

and far-reaching in volume, the burden of which is:

"We agree with you: We do not know everything."

The chorus arises from the collective lungs of the ticket man; and having established a friendly understanding with him, I do not hesitate to grapple with the other complications my statement may create.

City Man Is Loaded for Bear.

In the large transportation centers where guides of all kinds are available, which embrace steamship lines and ocean-going schedules, the ticket man is a pretty hard customer to corner. Men assigned to such positions are chosen carefully. Their experience, general deportment, qualities of temperament and all-around efficiency have been proven and you've got to talk rapidly if you can hand one of these employees questions faster than he can answer them with unruffled composure.

Occasionally — only occasionally — he muffs one and a reference to the guide-book is necessary. His stock of ready-to-wear information is so universal, however, that one gains the impression that it is all-embracing. From these experienced and skilful jugglers of transportation puzzles the tradition undoubtedly arises that a man stationed behind the ticket window at any point is invulnerable against an attack on home or foreign schedules.

As the importance of the railroad station diminishes, however, the ticket man appears in miniature of corresponding size. It is a long way from the glittering, polished ticket window in the Union Depot at Chicago, where all published schedules are available, to the town a hundred miles up the State where the ticket window has cobwebs on it and the only available guide is a dog-eared Bulwer which has been in the service a decade or more.

At the Chicago window you present the query:

"What's the fare to Tuskaloosa, Alabama, and when does the first train leave?"

Zip—bang! You've got it all in a bunch —fare, several different routes and leaving time of each; and the ticket man is expectantly looking over your head at the next batter-up.

If you can stand the impatient pressure behind, you ask the ticket man to repeat his fusillade: if not you say:

"Gimme a ticket—any route'll do."

Then you hunt up the information bureau and spend a half-hour finding out when you leave and what part of the country you are going to travel through.

On the other hand, if you propound the same query to the railroad representative at Bingville-on-the-Blink, a hundred miles from Chicago, you are likely to upset his digestion for the rest of the week.

"Tuskaloosa, Alabama!" ejaculates the startled agent. "Is that on the Wabash?"

You surmise that it must be on the Cotton Belt, that being suggestive of plantations and pickanninies.

"When you going?" asks the agent nervously.

"About the end of the week," you inform him.

"Come in again in a day or two," he says, vastly relieved. "I'll look it up and let you know."

You are doubtless surprised that it is necessary to "look up" such a trifle. Consider, however, that the last time a traveler sought information concerning a point beyond the main line, the agent's kid was cutting his teeth. The kid is now going to school, so it's little wonder that his dad has grown rusty on foreign schedules.

Between the extremes I have cited are various grades of efficiency. In some cases efficiency is conspicuous by its absence. In the training of thousands of ticket men and operators—who are called upon to sell tickets in addition to their telegraph duties —the raw material is occasionally placed on the firing-line by virtue of necessity.

To the inexperienced a coupon-ticket job is a ticklish proposition, trying upon the nerves and dangerous financially. If he makes a mistake of two cents or ten dollars on the wrong side of the cash account, the difference comes out of his own pocket with the uncompromising bond company as sponsor that he will "dig up" or work it out.

Ticket-Selling? Easy! Only—

Ticket-selling is not complicated—not nearly as much so as other departments of railroad routine. It is nice work and interesting; *but*—you must know exactly how to do it. You must know your forms and you must know your guides. You must keep posted on obsolete rates and revisions—and it's some job.

The handling of local tickets is simplicity in itself. Any one with ordinary intelli-

gence can be sufficiently coached in thirty minutes to guard him against error in selling local tickets.

The coupon case is a widely different proposition. It may contain a hundred forms, only the margin of the top of each being exposed. Even an experienced ticket-seller will spend some embarrassing moments until he knows just where to lay his hands upon each individual form. Nothing contributes more quickly to confusion than a line of impatient travelers, an approaching train and a ticket case in which every form looms up prominently except the one you are looking for.

"*Isn't* he slow!" snorts one of the uneasy ones outside, addressing no one in particular.

This starts a volley of comment, plainly audible to the ticket-man—they take pains to make it so.

"Slowest I ever saw," agrees Number 2 heartily.

"You wouldn't have to wait all day for a ticket over on the valley," contributes a third. "Them fellows know their business," etc., etc.

It is obvious that such remarks do not help to locate the elusive form.

When "OS" Comes to Town.

In the West coupon-ticket offices are located about thirty miles apart, though there is no fixed rule. In the East they are closer together. The stations in between do not handle anything but local tickets, but an operator is likely to be transferred from one of these stations to a coupon-ticket job without any previous experience or instruction.

Such jobs pay better than the "OS" station and are located in the larger towns. The operator, if asked, may claim experience in order to attain the transfer. Then his troubles begin.

The patrons of the road immediately develop a thirst for devious routings to unheard-of points. The leering forms in the ticket case rise up and confront him with his own ignorance. The rate revisions and circulars, as well as the guide-book, present but a confused blur of information from which nothing tangible can be wrested. His bewilderment is apparent.

The patrons of the road are dumfounded that such a monument of railroad ignorance finds employment and candidly express their views, thus adding to his confusion. At such moments all kinds of errors are made. First-class tickets are sold at second-class rates; wrong stations are punched; impossible routings are shown; and the ticket man has to pay the freight after the auditor has struck a balance.

The attitude of the traveling public toward the ticket man, however, remains unchanged through all the vicissitudes created by contact with the inexperienced. They simply regard the one who falls short of their ideals as an interloper who has sneaked into the ticket game through some unguarded portal.

He Put It Over on the Cute Drummer.

Now and then we find a wag inclined to have a bit of fun at the embarrassed ticket man's expense. Some years ago I was assigned to the third trick in one of the larger towns in Oregon. The ticket sales there amounted to about one thousand dollars per day, principally coupons.

My own experience was limited, but the second-trick man, upon whom the burden of the night sales fell, knew nothing at all about coupons. For the first few days he surely issued some rare-looking documents of transportation. A traveling man stopping in town over-night had noticed the operator's confusion and concluded to add a little to it.

I was loafing around the hotel office, waiting for midnight, when I heard him unfold the joke to a couple of casual acquaintances.

"I'll ask him the rate and different routes to Tallahassee, Florida," said the traveling man. "Don't think he ever heard of such a place and he won't be able to figure it out for a week. In the meantime we'll get him going."

I made a hurried trip to the depot and apprised the prospective victim of the plot against his peace of mind. Together we figured out the problem from all its different angles. When the jokers arrived we were ready for them. I remained in the background.

"What's the rate to Tallahassee, Florida?" asked the traveling man; and I heard a suppressed cackle from the "rubes" who had accompanied him.

"Seventy-seven dollars," promptly answered the ticket-seller.

"Over what route?"

"Any of 'em; it's a competitive tourist rate," replied the ticket man with a trace

of surliness in his voice, for he was mad clear through.

"What routes are available?"

"San-Fran, Chgo, Cincinnati:
"St. Paul, Chgo, New York:
"Portland, Ogden, Omaha,"

droned the ticket man like a train-caller in Grand Central Station. "Excuse me; the telephone is ringing."

"What time do I arrive in Cincinnati, if I go that way?" persisted the other as the operator went to the phone.

"Ten-fifteen in the morning," snapped the forewarned victim.

"Um—ah—thanks," said the disappointed traveling man as he turned from the ticket window. I heard a chorus of bucolic laughter which indicated that his companions appreciated the joke, even if it hadn't turned out as they expected.

As the operator returned to the ticket window one of the bunch, apparently not quite satisfied, called out:

"What's the best way to get to Muskogee, Oklahoma, and what's the fare?"

"Best way for you to get there is in a box-car, you hayseed," snarled the operator, who lost his temper on the second assault. "You haven't got the price of a ticket if it only cost four bits."

This sally was greeted with uproarious laughter which drowned the retort of the Muskogee inquirer, and the party left without expressing further curiosity as to rates or routings.

Care Needed for Even Local Tickets.

In moving about from place to place on the same division confusion sometimes arises even in handling local tickets which may result in financial disaster. As an illustration, I had been working in an Oregon town where the rate to Portland was $3.25. I was transferred to a station further south, from which the rate was $3.75.

On my first tour of duty I sold nineteen tickets to Portland for the early-morning local at $3.25, the rate I had been using at the other station. One of the travelers, a dyed-in-the-wool mossback, was so elated at saving fifty cents unexpectedly that he confided his good fortune to the baggageman.

"New rate to Portland, ain't there?" he chuckled as he was getting his carpetbag checked. "That feller in there is selling tickets for three and a quarter."

The baggageman was pretty busy, but he took time to stick his head in the window and yell:

"Say, op, quit selling Portland for three and a quarter; it's three seventy-five!"

A glance at the ticket case showed that I was out $9.50—and the train almost in sight! I made a short speech to those in the waiting-room and another to the bunch on the platform, explaining my mistake, and requesting those who had profited by it to step up and donate an additional fifty cents. They all did so promptly with the exception of the tight-fisted old yap who had called the baggageman's attention to my error.

"No, sir," he told the baggageman when the latter suggested that he "kick in." "It's the first time I ever got ahead of the railroad, and durned if I'm not going to stay ahead."

$6.20 Had a Hairbreadth 'Scape.

At the same station I sold a ticket to Salt Lake that nearly cost me $6.20, which would have been quite a catastrophe if it had to be deducted from my pay-check of sixty-five the month. As a matter of convenience, particularly for new men, the agent had typewritten a list of rates, embracing a number of large cities to which tickets were occasionally sold.

This list showed a first-class rate to Salt Lake of $33 and a second-class rate of $26.80. The second-class rate, however, was no longer in effect. A faint line had been drawn through it on the list at the time of cancellation, but the line was so dim that I did not notice it in the imperfect light.

I sold a second-class ticket for $26.80, and my error was not discovered until the agent checked up that morning. The passenger was then well on his way to Salt Lake. At the time I sold the ticket I had remarked that the purchaser was poorly clad and that in producing the $26.80 he had searched every pocket in his clothes, extracting a portion of the amount from each. I concluded at the time that the $26.80 must have nearly strapped him, and I felt after discovering my error that even if he was located on the train it would be a hopeless task to obtain the balance from him.

The agent, nevertheless, wired the general passenger agent at Portland, and the latter took successful steps to locate the

passenger. A Short Line conductor collected the $6.20 for me just as the train was approaching Ogden, but thirty-three miles from the passenger's destination.

In addition to the legitimate duties of the ticket seller, which, if he is inexperienced, are always sufficient to keep him in a state of disturbed anticipation as to what obscure corner of the country the next traveler may be heading for, there is still a wide range of information which the public thinks he has on tap. Patrons frequently drop in at midnight to inquire about freight classifications, express rates, etc., and are surprised when the information is not promptly forthcoming from an operator who has had barely enough experience to expense a waybill and no more.

The desultory ticking of the telegraph instrument suggests a wide knowledge of the world's affairs. The wire runs only as far as the division point, a hundred miles away, but if there is a cyclone in Kansas or a flood in Mississippi the patrons expect the man behind the ticket window to be in close touch with the situation and have all the particulars.

The hog-market in Kansas City and the wheat-market in Chicago are often subjects of inquiry at the ticket window. Local and political conundrums find their way there also.

The advance theatrical man and the county fair bill-poster confer frequently with the ticket man as to the most conspicuous place to post their flaring literature. In fact—particularly in the smaller towns—nearly everybody arrives at the ticket window sooner or later.

Is it any wonder, then, that sometimes—even at the expense of shattered public opinion and uprooted tradition—the ticket man is obliged once in a while to answer, "I dunno"?

THE DAY'S RUN.

BY THOMAS REMSEN CRAWFORD.

THERE'S a kind of fascination for a man, whate'er his station,
When he sallies forth at rosy dawn with energy aglow;
Be he lawyer, farmer, preacher, artist, artisan, or teacher,
He goes plunging forth with buoyancy to see his business grow.
Men of millions find a pleasure going to their golden treasure,
And the miners find a measure, too, when in the shaft they slip,
But the pleasure is emphatic—nothing could be so ecstatic
As the joy that thrills an engineer when mounting for his trip.

Now the station gong is ringing; "All aboard!" the boss is singing,
And the restless bell is swinging high above the engine's back;
And the cylinders are steaming, and the morning sun is beaming—
Oh, a fellow's soul goes dreaming as he glances down the track!
Off among the woods and bushes, where the merry brooklet rushes,
And the mocking-birds and thrushes flee away with broken song;
On and on beyond the river—how the girders quake and quiver!—
'Nough to make a fellow shiver—as the drivers crash along.

Past a flock of grazing sheep will come a glimpse of spire and steeple,
And a group of village people will be waiting by the track;
Little time 'twill take to thin it; just a noisy, nervous minute;
And the driving-wheels will "spin it" once again when brakes are slack.
On with passenger and chattel, through the fields all specked with cattle;
Hear the rumble and the rattle through the cut, around the bend—
Ho! At last! Another city! And it really seems a pity
(If you listen to my ditty) that the journey's at an end.

The Sunny Side of the Track

THE Boss: "What's this item on your expense account, 'Overhead Expense, $4'?"

The Traveling Salesman: "That was an umbrella I bought."—*Philadelphia Bulletin.*

THIS little rule will take you far,
If you will only mind it—
Don't cross before a trolley-car;
You'll find more room behind it.

—*Exchange.*

"HOW about your new stenographer? Is she quick and accurate?"

"Yes, sir. She can powder her face, arrange her bracelets, and fix her hair quicker than any stenographer I ever had. And do it accurately, to."—*Kansas City Journal.*

DOWN in Pittsburgh, Mrs. Mulvaney one day met her friend, Mrs. Carr, who had in her arms her twelfth child.

"Arrah now, Bridget," said she, "an' there ye arr wid another little Carr in yer arrms."

"Another it is, Mrs. Mulvaney," replied her friend, "an' it's me that's hopin' 'tis the caboose!"—*The Maize.*

SPEAKING of easy jobs, we were introduced to the limit the other day as we overheard a conversation between two or three neverworks. The first one said that his idea of a good soft job would be the cleaning up of the left-over food at a fashionable hotel.

"That's pretty soft," admitted the second, "but have you ever considered a job unloading trays as the waiter brings them in?"

"You fellers have a fine idea of soft jobs," cut in the third. "I know a good thing when I see it."

"What's the answer?"

"Being the fireman on an electric locomotive."—*Electric Railway Trainman.*

AN old gentleman joining the Scotch Express at Euston, London, one night informed the conductor he was traveling to Crewe, and wished to sleep all the way up. He stated that whenever he was awakened out of a sleep he refused to obey any one, and always gave way to very strong language.

"However," he said, "no matter what I say or do, put me out at Crewe."

This the conductor consented to do, and the old man fell into a peaceful slumber. After a good snooze he awoke and discovered the train was at a standstill—at Glasgow. The Scotch conductor was standing at the door of his van, and the passenger approached him with flaming face. He made several forcible remarks, and asked him why he did not put him out at Crewe. The conductor listened in silence, and looked at the old man for a while. Then, gripping his beard with his right hand, said:

"Mon, you've a powerful vocabulary richt enough, but you cudna haud a caundle to the man we put oot at Crewe."—*Glasgow Herald.*

"TICKETS," said the collector as he opened the door of the car in which sat a man who looked as if he was anchored to his seat. The man handed over the pasteboard, which was duly inspected. Then, looking around, the collector said:

"Is there another gentleman in the car?"

"No."

"Is that other portmanteau yours, then, too?"

"Other portmanteau?"

"Yes; on the floor there by the other."

"Those," said the traveler with dignity, "are my feet."—*Houston Chronicle.*

WILLIE finally persuaded his aunt to play train with him. The chairs were arranged in line, and he issued his orders.

"Now you be the engineer and I'll be the conductor. Lend me your watch and get into the cab."

Then he hurried down the platform, timepiece in hand. "Pull out there, you red-headed, pie-faced jay!" he shouted.

"Why, Willie!" his aunt exclaimed in amazement.

"That's right, chew the rag," he retorted. "Pull out. We're five minutes late already."

Willie's parents had to forbid his playing down by the tracks.—*Fort Wayne Journal Gazette.*

A BOOMER switchman was called upon to testify in a rear-end smash-up. The following conversation developed in the investigation:

Superintendent—"Mr. Switchman, will you kindly tell us in your own language just how this horrible accident occurred?"

Switchman—"Well, boss, is was this way: The tallow-pot was bustin' the diamonds; the hoghead was squirtin' oil on the pig; the con was in the doghouse flippin' the tissues, and the back shack was in the middle freezin' a red hot."

Superintendent—"And where were you?"

Switchman—"Me? Oh, I was up ahead bendin' the rails."—*Santa Fe Employees' Magazine.*

SPIKE MALONE ON MOUNTAINS.

BY JOHN C. RUSSELL.

He Likes the High Hills, Even Though They Got His Goat When First He Ran a Train through Them.

"I TAKE OFF MY HAT AND MAKE HIM A BOW."

SPIKE MALONE bulged into the room, heaved his overalls into the corner, and fell into a chair.

"Rusty," said he, "I'm sure getting sick and tired of bad-ordering cars hither and yon over this festive pike. They's too many dad-blamed humps and hollows sprinkled along it to dovetail nicely with what I esteem as a decent right-of-way. Looks like I was going to fracture all previous records obtaining on this division for the number of lungs neatly extracted during one calendar month. At least I have sure made one mighty healthy start thataway, you hear me warble!

"At that, I'm noways anxious of making my living on a road where there's too much sameness in the scenery. None of these flat-wheel divisions for little Spike if I can help it! I'll take mine up in the high hills if you please!

"Just the same, these specified hills surely get my Angora the first time I ever essay to handle a train thereover, and this first trip over a mountain division leaves a memory with me that clings closer than a brother! Talk about treemers! I surely enjoys pang of anxiety galore, not to say scare!

"Where I originate as a hoghead is back on the old Pennsy, as you-all are doubtless aware, and the particular division where I break into the railroad game is as flat as any billiard-table you wot of. Later in the course of my career I have good and ample cause to leave out from those

parts and drift West in search of a job. I finally land one in the State of Arizona; and right here I rise to remark that if you or any other misguided walloper go into these regions seeking for any country that even looks like it wanted to be flat you are going to get fooled a heap. There ain't any such thing! Out in this portion of the wild and woolly if you-all ain't going straight up you're going straight down, and the road-bed meanders over curves piled on reverse curves the like of which turns a snake dizzy to navigate.

"However, I'm plumb busted and I need a job something fierce, so I fall for this layout like a kitten for warm milk, and it's no time at all until I've passed muster as a full-fledged hoghead able and willing to perform mountain service. At that I'm a liar, as any impartial witness to the capers I commit on my first trip bears ample witness.

"I'm a heap dubious about surging forth onto this road with a train behind me, especially as the master maniac deems I don't need to make any student trips, hogheads being one mighty scarce bird those days, and business rushing.

"However, seeing I'm up against it, as I previous narrate, I aim to bust forth and negotiate her one whirl if I never see the back of my neck. There's two rails all the way, ain't they? What more would a boomer want?

"'Long about 6 o.x. they rout me out of the hay for a time-freight run west; and, believe me, Rusty, I'm mighty thankful that they elect to shag me out in the daytime instead of in the dark! At least I see where I am going on this jaunt, and that's one satisfaction!

"I mope forth to the roundhouse, coon the pig I've drawn in the shuffle, and get into my fighting-clothes. And here's another brand-new novelty to yours truly! This pig is an oil-burner, and I understand just as much about this liquid fuel at the time as a pig does of Sunday-school.

"By and by up blows the fireboy and the head animal, and we proceed to get around against our string out in the yard. Mr. Conductor blows around with the traveling-papers after an interval, during which we test our air according to Hoyle and I whistle off after me and him check our orders with the clearance. This on account of the pleasant little way the road has of slipping you phony, letting you get out of town and then dispensing Brownies a heap therefore some few days later. Oh, they're a foxy layout down there, take it from me!

"Rusty, I ain't feeling so plumb confident and gala as we emerge from outen the main-line switch as I was when I contract for this here job! No, sir! I begin to get assailed of doubts, and they ain't noways what you-all characterize as vague, either. I mistrust we're going to horn into a mess of grief sooner or later. In fact, I possess a hunch thataway that mounts up into a conviction.

"For one thing, the motive power is one of these ten-driver tandem slam-pounds, and all this doubling up of cylinders is both new and weird to me. You-all may say my knowledge thereof is merely academic to the extreme. So here I am with a strange engine on a strange road, with a fuel which is a deep and dire mystery to me. 'Tain't any wonder I get these hunches regarding the forthcoming trip. I leave it up to you if it was!

"Did we?

"Go 'long, man, asking me a fool question like that!

"Lemme tell you about it!

"Well, sir, the first part of our run was merely a pleasant little jaunt of sixty miles all up-hill, but the grade acts reasonable, and I manages to drag into that burg along about ten o'clock with all the cars we started with and a complete sense of relief. But wait! Right out of town on the second lap we wind around up into the hills on a grade that no self-respecting road ought to tolerate. Man, it's like climbing the side of a roof! We beat it for the Chino's, eat 'em up a few, and stroll back to the pig.

"When the car captain gives us the orders I whistle off and proceed to fracture all the yard-limit rules made and provided in getting in a little run for that hill. The fireboy and the headmost brakeman give me the astonished glare, the cause therefor I discover when I feel the air go on and we grind down to a stop with me still working steam.

"I was peeved and inquire whyfor this stunt. Pretty soon I get enlightened a plenty. Up blows my worthy conductor, out of wind and out of temper and just seething with bad words.

"'Lookee here, you misguided son of a toad!' he emits. 'Do they run trains

where you come from without conductors or do you-all surmise I sprout wings or some such play? How the so-and-so do you-all expect any human to grab onto the crummy traveling a thousand miles per hour? Now, you take it easy outer here and let me git on where I belong to be, you hear me! You-all pull that stunt just once more and I shorely romp over here and take you apart a heap!'

"And with that he beats it for the hind end. Rusty, I'm plumb astonished! I clean overlook this conductor person; but from that time on, take it from me, I most certainly bear him in mind a plenty. Not that he gets popular with me, 'cause he don't; but from motives more prudent than otherwise.

"When I get a sign from the hind end I proceed to horse the yavvy open, and you can guess the answer. Nary a move! Back comes the bar. I reach down and simple the old girl, give her a little steam to start them back for the slack, and just as I'm putting her in the forward motion here comes an awful yank at the tank like the crack of doom, and we start to back up and down the slope with some degree of rapidity.

"Of course I wind a little breeze under them and we get stopped; but right there I contract an idea that I don't like taking slack on a hump a little bit. *Poco tiempo* I kick 'em off, yank the throttle open, and here we go!

"That is, here we *went!* When the old girl gets rid of about three of those big, tearing exhausts, she runs up against the slack from the hind end which has released the air and started back home on her own hook.

"And right there the works happened! *Whamm!* goes the air, and the pig quits me cold like she has run into a mountain. At the same time rises a cloud of dust

"I'M SURE GETTING SICK AND TIRED OF BAD-ORDERING CARS HITHER AND YON OVER THIS HERE FESTIVE PIKE."

from about the middle of the train, and my bold and fearless head shack emits a wailing like unto a curlew on the lonely beach!

"'Aw, dawg-gone it!' he mourns. 'Now you-all have gone and done it! 'Nother draw-bar gone to glory, and me to pack chains and lug knuckles. For the love of Mike, have a heart, friend!'

"And with that he elopes down onto the ballast and tracks for the scene of the crime. After a while we get them chained up—that is, the train crew does, whilst friend fireman and I exchange mutual recriminations—and we back into the yard again, set out our weak sister, couple up, and are ready for the big works again.

"Up blows the Brains, and hands me a mess of old head. I cut him short!

"'Beat it for that dog-house, my gay and festive car-grabber,' I tell him, 'or go high, 'cause I'm about to leave town, and I'm going to *leave*, too! Pull the air on me again and I'll hand you a mess of lungs to chain up that will occupy your attention for some brief space of time. I've got the combination on this scrap heap now; so embark, *pronto*, for the hot shot is about to depart!'

"And, so saying, I toot cheerfully on the whistle and open her up, and my friend with the tin badge hastily decamps for the rear. Nor did he stop me, so I got a nice little swing on them up around the first curve. Twarn't any great shakes to keep them rolling up the hump, though the fireboy and I differs audibly about my system of batting the stack offen the pig at the expense of his steam and water. Nevertheless, we roll 'em up on top of Sweeney hump and stop to test the air.

"UP BLOWS MY WORTHY CONDUCTOR, OUT OF WIND AND OUT OF TEMPER AND JUST SEETHING WITH BAD WORDS."

"Staring at me in the face is a grade, going down, which makes the one we just pump up look like a flat spot. Right then and there my previous doubts flock in again anew and I get obsessed of a fit of cold-footitis, good and hard. There ain't anything to it but make the riffle, so we proceed to wend forth from the burg in fear

and trembling. I set 'em up and let 'em off regardless, and we crawl down that hill at a pace which makes me blush later. Tain't so long a hill, and I heave a sigh of relief when we hit the bottom, which originates r i g h t at my toes.

" Merrily across the flat we go, only to run into another confounded down-hill worse than the other. And, not knowing where we are at all, we're rambling along about thirty per when we p i t c h over the hump. Right there is where I make the full service à la Westinghouse, his book of instructions, but still the string percolates along at a gait that ain't safe and sane running, from my point of view, one little bit.

"'''NOTHER DRAW-BAR GONE TO GLORY AND ME TO PACK CHAINS AND LUG KNUCKLES.'"

" Rusty, the way we slam around those curves, first on one side and then on the other, surely puts gray hairs into my top-knot! I hang on to my reduction as long as I dared, remembering that I didn't have any good old E. T. those days, and when I finally went to full release I hadn't tamed that train down five miles per!

" I grab my nerve in my two hands and stayed over there in the full release as long as I dared, so when I did get enough on the gage to look something like a full recharge I'll gamble dollars to doughnuts as long as the doughnuts hold out that I was hitting the high spots at some forty-odd miles per hour.

" The head shack and the fireboy give me a look like they thought I was plumb crazy, and I began to think so myself. Soaking her the full twenty-pound reduction didn't fease her a little bit, and if we hadn't shot out into a sag about that time I was seriously considering joining the birds then and there. But the sag managed to check them up enough for me to go to release again. Then over comes the shack.

" 'Look out, old head!' he yells. 'There's Chute-the-Chutes Hill right forninst you now, and she's quite some hill!'

" 'You blamed nut!' I yell at him. 'What the blazes do you-all call that thing we just come down! I suppose we were going up-hill all this time, eh! If this Chute-the-Chutes Hill you speak of is any worse than the one we just fell down you let me off right here!'

" 'Rats!' says he. 'That warn't any hill! This here is a *hill!*'

" 'Good night!' I gasp; and about that time we pitched over the crown, and I'll take my oath the track went straight down, no less! That shack hadn't lied a mite, Rusty, except that it warn't a hill, only a precipice, that he was talking about.

" How we got down I'll never tell you. I operate the brake-valve more or less, but so far as knowing what I was doing, or for any effect it had on the train as far as I could tell, I might just as well have waved my hat at 'em! She sure was some ride! I tell you, as knows!

" Gentlemen, hush! I shorely sweat blood down that mountain, and when we finally rambled into Fernandez yard and stopped with the big hole within ten feet of running out the other end onto the main line, I was so tickled I almost forgot to be scared.

" While I was congratulating myself on escaping an untimely death here comes my friend, the captain, with his little switch-

list, and around to the hind end we goes. We reached in and got the crummy and then picked up eighteen big mastodon tanks of water and shoved the works in onto the train again. Then I get some more cheerful information. Mr. Conductor swarms the cab and unloads onto me.

"'Son,' says he, 'you-all are shore some high-daddying hogger, but we are now approaching Mohave Mountain, and if you-all ever expect to see the bottom, don't, for Heaven's sake, *don't* try to go down it like you-all come down Chute-the-Chutes Hill. 'Cause it's one *ba-a-ad* old hill, believe me. Use brains, son, use brains!'

"I butt in.

"'Far be it from me to doubt your word, old-timer, but do you-all seek to insinuate that this here mountain, as you denominate it, has got anything on this slope we lately emerge from? 'Cause if you do, you're either a liar by the clock or I'm going to get offen this hog right now while I'm all together!'

"'Why, Chute-the-Chutes Hill?' he asks like he was surprised to death to see I regard that young precipice like it was a hill. 'Chute-the-Chutes Hill! That there ain't any *hill!* Wait till you-all pitch over old Mohave! You-all reconstruct your previous notions concerning hills right there!'

"I didn't say much more! Not me! I simply reach for my coat from outen the seat-box and start for the ground. Mr. Conductor heads me off, and between him and the fireboy they finally get me reconciled into trying her one whirl anyway. The more fool me!

"We drag up out of Fernandez yard slow and careful and wend our way up the three miles to Mohave Summit. And, Rusty, when we pitch over the top of that hump I shorely deem we have come to the jumping-off place for a dead moral certainty! Words fail me! And so did my breath!

"Being in this here semicomatose state I pulls a real, old-fashioned bonehead right on the jump. I ain't anyways anxious to get any further into the slope than I have to, so when I stop to set the air for my test as per the time-card instructions I stop 'em with the hind end nicely hanging over the other side of the hill—and you know what transpires immediately. When I get the high-sign from the crummy I proceed slow and cautious to poke the old girl down that mountain; but I hadn't made but about three or four revolutions when the works come off.

"Same old story—only this time we get three drawbars with hardly any effort at all. I wish I could reproduce the language that train-crew sews around the Arizona scenery; it soared up into what I denominate as sublime. We were right there for over an hour chaining up before they give me a token to get out of town, and this time, by juggling with the pig like I was handling eggs, I manage to pull them over all in one piece. But here's this mountain staring me in the face!

"Glancing back, I am overjoyed to see the entire train-crew, conductor and all, nicely armed with brake-clubs, manfully performing on the tops of the rattlers. This here operates to embue me with considerable more confidence. At least I'll have some binders holding while I'm battling around trying to get my train-line recharged. So here we go happy as a lark and as nervous as a he-male at a suffragette ball.

"I kept the air under them as best I knew, but before long we begin to push forth with more and more of that speed stuff, and I begin to wax extremely anxious. I starts out with as nice a seventy-pound train-line as you ever saw; but before I pass the water-pond on the big curve I am stepping along at about twenty per, which is ten too many to suit me, and my train-line has mysteriously dwindled to somewhere around fifty-five. And that don't look nice to me at all!

"'Bout that time I glance around to see if I still have a train or no, and up goes my heart into my mouth when I see my bold and fearless conductor frantically handing me a washout. Stop! Rusty, I'd have given my interest in the road to have been able to slow down, let alone stop! We were simply gone from there!

"So, to make him feel easier in his mind, I squalled for brakes and continued to do so at stated intervals from that time on. Every little helps, you know!

"We whipped around Death Curve on one side, I'll swear, and I ease down on one step and the fireboy on the other; but the soft spots looked mighty few and far between and the unloading looked bad—awful bad! About that time we shot through the east switch at Jericho and hit the sag. As I felt the speed slack up I

crawl up into the cab, open the sanders, and put the old lady in the britching.

"Just about the west mile-board we get them halted and all hands draw their first normal breath in some miles. The train-crew strolled up ahead and after bawling me out to their heart's satisfaction we sat down to talk it over. No. 8 is due at Jericho, so we back up into clear at the west switch. Then my conductor horns in again:

"'Watch out for her from here on, pardner. We are now hitting the bad part of the hill after we pass that curve there by the mile-board!'

"I looked at that man for a good three minutes while I let that soak in.

"'The bad part?' I queried, doubting my ears.

"'Unh-hnnh!' says he. 'The real part of this hill!'

"I take two or three real deep breaths and just nacherally wrecked that man! The bad part! Wouldn't that frost you? Here I run away, and by the mercy of Hades, no less, gets 'em stopped a mile or so past where I was supposed to head in for the varnished cars, and here's an inhuman, copper-boweled, brazen-faced conductor telling me we was about, mind you, about to come to the *bad* part! Good—*night!*

"They pried me offen him just as No. 8 drove up, stopped for water, and left town. I stagger to my feet in time to confront a husky, two-handed gent that I knew for George Anderson, the traveling hoghead.

"'George,' says I, with tears in my voice, 'you-all wouldn't lie to a stranger, would you? You-all know what this blankety-blank just tells me? After I narrowly escapes meeting yon passenger on the main line, just misses joining the birds, and come down here from Mohave first on one side and then on the other, he now says we are about to hit the *bad* part of the hill! Tell me he's a liar, George, and then let me kill him a few more! The bad part! If that wouldn't frost your coconut!'

"George smole a little smile.

"'He's right, Malone,' he says; 'just even right!'

"I looked at him for a minute while that perco-

"CONDUCTOR AND ALL, NICELY ARMED WITH BRAKE-CLUBS, MANFULLY PERFORMING ON THE TOPS OF THE RATTLERS."

lated into my stunned brain. Then I saw a great light. I take off my hat and make him a bow.

"'There's your engine and there's your train, Mr. Traveling Engineer Anderson. You-all can have her. The walking's good from here to Fernandez, believe me! Take your old death-trap and go! Run her? Why, I wouldn't even ride her the rest of the way!'

"And with that I set off up the track.

"And I didn't, either! Not until I had made about s'teen student trips and gotten back my nerve! Not Spike!"

MY ENGINEER.

BY LYDIA M. DUNHAM O'NEIL.

THE shining rails come twisting down
Through many a prosy little town,
Past hillsides green and hillsides brown,
And meadows fair, and meadows sere;
And through the mountains' curving rift
I watch the freight-train downward drift,
So long and sinuous and swift,
And at its front my engineer.

IN spring-time, when our hearts are stirred
By bud and blossom, bee and bird,
Or when chill winter's winds are heard
In mournful moan, and wailing drear;
In summer, when sweet roses blow,
In autumn's gold and russet glow—
In time of bloom, or time of snow,
I see him still—my engineer.

THE wind makes music in the trees,
And bird-song floats upon the breeze,
And rushing brooks make melodies,
And from afar I faintly hear
The music of the waterfall,
But sweeter far to me than all
Is his long, sweet, and plaintive call—
The whistle of my engineer.

A HAND to guide the mighty train
O'er mountain-pass and lonely plain;
An iron nerve, a steady brain;
A soul that scorns all doubt and fear;
An eye to read each signal-light
That glimmers dim or twinkles bright,
And shows the way through darkest night;
A heart all mine—my engineer!

A BOOST FOR THE RAILROAD "OP."

Pounding Brass Is Only One of His Accomplishments, as This Commercial Telegrapher Was Surprised to Find Out.

BY RALPH JOHNSON.

DURING several years' experience as telegrapher in the larger offices of the commercial companies I had always held in contempt the operators who worked for the railroads in the small towns and villages. This was due to my entire ignorance of the conditions under which these men worked.

Throughout the country in the towns so small that the volume of telegraph business will not warrant the commercial companies installing an office the railroad companies contract to furnish wires and an operator—generally the agent—whose duty it is to receive messages from the public and send them to the nearest " relay point," where they are transmitted to their respective destinations. It was in a relay office that I formed my first acquaintance with railroad operators.

Pitied the " Ham " at the Other End.

Seated in a comfortable chair with an arm resonator—a device consisting of a hinged arm by which the sounder can be swung close to the receiving operator's ear and thus exclude any foreign sounds—close to my head and copying on a " mill," as a typewriter is called, I could not keep from contrasting my ability with that of the railroad man at the other end of the line, who frequently " broke " and delayed business for some reason unknown to me.

Having formed a " wire acquaintance " with a man who worked in a railroad office some fifty miles distant, I was one day invited to come down and see him, and as I had not had a vacation for some time I accepted. I applied for a day's relief, which was granted, and boarded an early train the following day.

I finally arrived at my destination and alighted from the train. Looking about, I saw a small station painted red and adorned with empty milk-cans, poultry-crates, and various kinds and sizes of boxes, packages, and truck.

A young man wearing an agent's cap was standing on a truck in front of the baggage-car door, and with the assistance of the baggageman and the advice of several bystanders was trying to lift a heavy trunk into the car. With a herculean effort the two men managed to hoist it through the door and onto the baggageman's foot. This provoked a stream of profanity, which was lost in the roar of the departing train.

On entering the depot to look up my friend the operator I located the telegraph-office by the busily clicking instruments. It was separated from the waiting-room by only a latticed wire partition, which did not prevent any of the sundry sounds originating from a checker game then in progress from filtering into the agent's sanctum.

As I turned about to inquire for my friend I was met with a hearty " Good morning," and shook hands with the agent.

" Guess you are ' JN ' from ' DE,' aren't you?" he said. " I am the man you have been talking to over the wire. Come in and wait till I'm clear and we'll have a chatter."

I was much surprised to know that telegraphers were asked to do such labor as loading trunks, as my experience had been limited to commercial offices, where such a request would have been met with a haughty refusal.

We entered the office. I seated myself in a comfortable chair and waited to see how railroad men earn their money. My friend first lit his pipe and motioned me to do likewise, winking at the NO SMO-

KING sign that was posted in the waiting-room. Then he commenced operations.

A freight-train had waited on the siding to meet the passenger which had brought me in. Now the engineer and brakeman came into the office and asked the operator as to the whereabouts of about seventeen trains. He proceeded to enlighten them leisurely and at the same time "OS'd," or reported to the despatcher, the passenger-train which had recently departed. After he had satisfied the curiosity of the train-crew as to the progress of other business on the road he answered the despatcher and prepared to copy an order for the freight, which had now moved off the switch till the engine stood directly in front of the office window.

Listened to Sounder in Midst of Racket.

During the wait on the siding the steam-pressure of the freight-engine had run up so high that it "popped," or blew off, through the safety-valve. This made a roar that was almost deafening. Moreover, for some reason known only to "tallow-pots," the fireman still kept the blower going to add a little to the general confusion.

I looked at the sounder, which was located on the table about three feet from where the operator was seated, and could see by its movements that some one was sending, but could not hear it, much less read the order that was being received. It is still a mystery to me how that man, whom I had heretofore considered a "ham," copied the order; but copy it he did, penciling it in the most beautiful longhand that I have ever seen.

After the freight-train left and business had quieted down for a time we "talked shop." In the course of the conversation my friend said:

"I guess from some of the 'callings' that the men in 'DE' have given me that you fellows up there don't think we railroaders are very swift in the telegraph business; but you can see that we sometimes work under difficulties."

I admitted that then and there and added that as long as I had to telegraph I would prefer to stay in the "Main," where there are no engineers to shout questions in one ear and no engines to roar in the other.

And when I resumed my duties I could easily overlook the matter if a railroad man held up business for a time, as I could imagine that a deaf old farmer might be pounding frantically at the ticket-window and demanding a ticket, two hours before train-time.

WITH THE INVENTORS

BY LESTER L. SARGENT.

WE print with each invention described the number of its patent papers. Readers wishing to secure more minute details and drawings of these patents can order from the United States Patent Office, Washington, D. C., by giving the number. The government charges five cents each for patent papers. Remember that stamps or other forms of currency are NOT *taken. A five-cent coin must accompany each single order.—THE EDITOR.*

OUT in Kansas weeds are cut by a Mower which trails behind the hand-car. The scythe blades trail from opposite sides of a rail-riding guide of inverted U-shape. A pivotal and spring connection which the mover has with the hand-car enables the device to ride gracefully over obstacles encountered along the railroad track. Samuel S. Button and James A. McTaggart, Hanston, Kansas, invented this Railroad Mower. Patent No. 1,160,838.

RALPH W. LEDBETTER, Birmingham, Alabama, has invented a Repair Coupling for Air-Hose, No. 1,166,059, that makes repairs easy and inexpensive. It reclaims and restores to service scrap-rubber hose which would otherwise be in the discard.

"Ordinarily," says Mr. Ledbetter, "when an air, water, or other hose bursts or fails for any reason, or is torn off, it is no longer serviceable and is consigned to the scrap-heap and a new rubber hose is applied in its stead. By the use

of this repair coupling the scrap-rubber hose is made as good as new so far as pertains to service. All that is necessary to reclaim such hose is to cut it in two at the place where it failed or burst, and unite the two ends by inserting a repair coupling in the same manner as applying couplings or nipples to new hose. A fluid-tight joint is formed, and the hose so repaired is again ready for service. A rubber hose can be repaired repeatedly with the new repair coupling."

A CINDER-GUARD that affords considerable protection against the cinder evil has been invented by David Funsten, Washington, District of Columbia, No. 1,171,033. It not only has a side shield between windows to ward off oncoming cinders, but in addition has a rooflike guard, positioned about half-way up on the window and extending between the cinder-shields on opposite sides of a car window. It effectually prevents cinders from dropping down into the eyes and face of the traveler who has his window open enjoying the view.

A BELT with an unusual degree of elasticity has been devised by Rudolph Vuilleumer, New Rochelle, New York. It is designed for transmitting power from the axle of a railroad car for the purpose of driving a car-lighting generator. The patent, No. 1,168,446, has been acquired by the Safety Car Heating and Lighting Company, New York City.

The belt consists of sheets of steel arranged in pairs and fastened together at different points. Each pair of sheets has slits extending inwardly. The slits are disposed in alternate arrangement, one extending in from one side and the next slit extending past the first slit from the opposite side of the belt. The steel strips are attached to a compressed-leather belting, the materials being proportioned so that centrifugal force when exerted upon the belt will tend to move the belt outwardly away from the surface of the pulley. Thus it will relieve the pressure on the bearings of the generator and reduce the effective pull of the belt simultaneously with any marked increase in rapidity of rotation of the axle.

JEAN F. WEBB, Sr., and Jean F. Webb, Jr., New York City, are inventors of Train-Stops that have been given extensive tests under service conditions. Their latest patent, No. 1,170,789, for a train-stopping apparatus, has just been issued under assignment to the International Signal Company, New York City. Their apparatus as originally devised had a plunger mechanism for opening an air-valve in the air-brake system and thus setting the brakes on hitting a ramp secured to the road-bed. Auxiliary to this was a separate mechanism, also operated by a track obstacle in close proximity to the ramp that operated the first mechanism.

The second mechanism reset the air-valve that had been opened an instant before. That is, it did this if there was a clear track ahead. As the apparatus has now been improved, these two mechanisms have been combined in one structure. This reduces the number of mechanical parts and materially lowers the initial manufacturing and installation cost and also the upkeep expense.

But one ramp is now used on the right-of-way to operate the train-stop at a given point. Also but one plunger is now used to operate the train-carried apparatus.

First, there is an air-valve or other danger-indicating device. Second, there is a plunger which always positively opens the valve on its upward movement and also acts to reclose the valve on its downward movement.

The immediate reclosing of the valve suppresses the danger indication, or, in other words, prevents application of the brakes. The mechanical action of the plunger when it strikes the ramp on the trackway closes an electric circuit in the apparatus carried on the train.

This closing of the electric circuit in the apparatus produces an effective connection between the plunger and the air-valve, whereupon the setting of air-brakes is accomplished. The moving parts of the train-stopping apparatus are so made and connected with the air-brake system that they form a closed air-duct.

The construction is such that the breaking of any of the moving parts will allow the escape of air from the trainline and set the brakes. The successful operation of the device does not depend upon the holding effect of an electric current. There need be but an instantaneous completion of the electric circuit, for a latch or pin is thereupon projected into operative position to reset the valve. But if the electric circuit is not made for any reason the brakes are set, stopping the train.

JAMES N. ROBERSON, Wadley, Georgia, has devised a Safety Hand-Hold, No. 1,170,336, which is a very convenient device for the passenger. It is a grab-handle attached in vertical position to the side wall of the car at approximately the center of the spaces between the seats, and is thus within easy reach of passengers, to steady them while entering or leaving the seats.

A TRACK-SPRAY Apparatus, No. 1,169,990, has been devised by Andrew J. Neafie, Mountain Lake, New Jersey. The spray is delivered from the tubes that terminate on opposite sides of each rail, the spraying-apparatus being carried on a car. In this way a protective film of oil or other preservative liquid may be applied to the exposed surfaces of railway rails and their connected parts without getting the oil on the upper surface or tread of the rails or wasting it on the road-bed.

Such a treatment of bolts, fish-plates, and rail-joints as well as the rails themselves will prevent

rust and maintain the parts in proper working condition at relatively slight expense.

A feature of the apparatus is a guard which extends over the rail-tread surface and protects it from the spray of oil from the spraying nozzles at each side of the rail.

A rubber wiper may also be carried by the car, arranged to rub the tread and clear it of any oil if any or too much oil reaches it. The spraying-apparatus includes valves and controlling levers by which the amount of oil delivered from the oil-tank of the apparatus may be regulated.

A VESTIBULE Diaphragm, No. 1,171,261, invented by Edward A. Schreiber, Chicago, can be made wholly of metal. It has interlocking collapsible panels, with U-shaped ends that engage with a similarly bent edge of the adjacent panel. The patent has been assigned to Egbert H. Gold, Chicago.

VERY vigorous bumps can be sustained by a Bumping-Post, No. 1,170,639, for railroads recently invented by Edward C. Holmes, Norwood, Ohio. The striking-plate which receives the bump that stops a car at the end of a track has a socket portion which is telescopically mounted in a receiving-head, which also contains heavy spiral springs, one within the other, bearing against stepped portions of the cylindrical socket of the striking-plate. The rocker arms which support the part of the post first receiving the impact of the car are pivoted at their lower ends instead of having the usual rigid fastenings to the rails.

This allows a certain yielding of the receiving-head on receiving the blow from the oncoming car and lessens the liability of the reenforcing arms being broken.

The post is mounted on a concrete bed and its base-portion is seated in a socket in the concrete, with spiral springs separating the base and concrete bed. This construction allows a further slight yielding of the post under a heavy blow and greatly lessens the possibility of its being knocked over on receiving the shock of heavy blows.

A POULTRY-CAR, No. 1,168,821, especially designed for the transportation of live poultry, is the joint invention of Frank X. Mudd and Waldo P. Johnson, Chicago. The car contains tiers of coops, a stateroom in which feed is stored, troughs on the walls common to the stateroom and the adjacent coops, and rows of ventilating-apertures above and below the troughs. Ventilating-bars are arranged to extend in spaced relation lengthwise of and covering the ventilating-openings.

This arrangement prevents the poultry from pecking at the feed-bags stored in the stateroom, with the consequent danger of maiming and suffocating the weaker ones because of crowding underneath the troughs in an effort to obtain a surreptitious meal from the feed-bags leaning against the walls of the stateroom. The new spaced bars remove any temptation thus to get an unauthorized lunch between regular meals.

A DIRIGIBLE Fender for Street-Cars, No. 1,168,070, invented by Thomas Sheppard, Agnewville, Virginia, is the latest of many dirigible devices that have been contrived for street-cars, automobiles, and even for locomotives. When the car rounds a curve, the dirigible fender turns in the direction in which the track lies instead of projecting out to one side, where it is liable to hit any passing pedestrian who is not careful.

LOCOMOTIVE tenders can be coaled rapidly with a new Coal-Loading Apparatus, No. 1,157,366, invented by Henry C. Buchwald, Baltimore, Maryland. The coal is dumped into an elevating-chute which when filled is raised by a motor at the top of the elevating structure. When the loaded coal-chute reaches the top it tilts automatically, its pivoted side above the tender falls outward, and the coal shoots down into the tender.

All is accomplished rapidly, and the apparatus does not take up a great deal of space, for the storage bin is underground instead of being spread out over a lot of ground. One man can operate the apparatus without assistance, as the unloading from the chute is accomplished automatically.

OSCAR H. WHITMAN, Los Angeles, California, has devised a Traffic Signal, No. 1,158,610, to simplify the enforcement of safety-first rules by street railway and other street traffic.

It includes a simultaneously operated whistle and visible "Stop" signal that is rotated by the traffic officer.

A DEVICE for Lubricating Locomotive wheels, No. 1,170,752, the invention of Frederick W. Hodges, Detroit, has been patented to the Detroit Lubricator Company. When the locomotive is standing still the device is inoperative. Vibration of the locomotive or car when in use, however, vibrates mechanism that allows oil to flow down upon the flanges of the wheels.

A pendulum device, operated by the vibration of the locomotive or car while in motion, controls the operation of a pump that takes oil from the tank and delivers it to the wheels.

It is obvious that no oil will be fed when the locomotive is at rest and when it is not desired. The pendulum device includes two vertical rock-arms which seesaw up and down in tubes in the oil-tank, forcing oil past the check-valve when the locomotive is in motion.

N. Y. C.'S SAFETY-FIRST MOVIE.

Marcus A. Dow, Author of "Steve Hill's Awakening," Explains the Purpose Back of His Second Film, "The House That Jack Built."

ACTUAL RAILROAD WRECK IS SHOWN.

Play Is Aimed Especially against Such Careless Habits as Short-Flagging, Neglecting to Wear Safety Goggles in the Shop, Working at a Buzz-Saw with Guard Removed, Stepping between Moving Cars and Jumping on the Footboard of a Moving Engine.

BY MARCUS A. DOW,

General Safety Agent, New York Central Lines.

"BETTER be careful than crippled" is the lesson taught by a motion-picture play which the General Safety Committee of the New York Central Lines recently caused to be produced. The play, which is entitled "The House That Jack Built," drives home as nothing but a striking motion picture can—unless it be the actual eye-witnessing of a succession of serious accidents in the space of a single hour—the consequences of carelessness and the incessant necessity of Safety First in the operation of railroads.

Half a million railroad men saw "Steve Hill's Awakening," the first motion picture Safety-First romance, which was produced by the New York Central about two years ago. I hope that twice as many will see and profit by its successor, "The House That Jack Built."

The story of *Steve Hill* was of a brakeman's experiences. The story of "The House That Jack Built" covers, in a general way, the whole field of railroading. It has a "punch" for the men in the shops and for the men who short-cut aross the tracks, as well as for the men on the line.

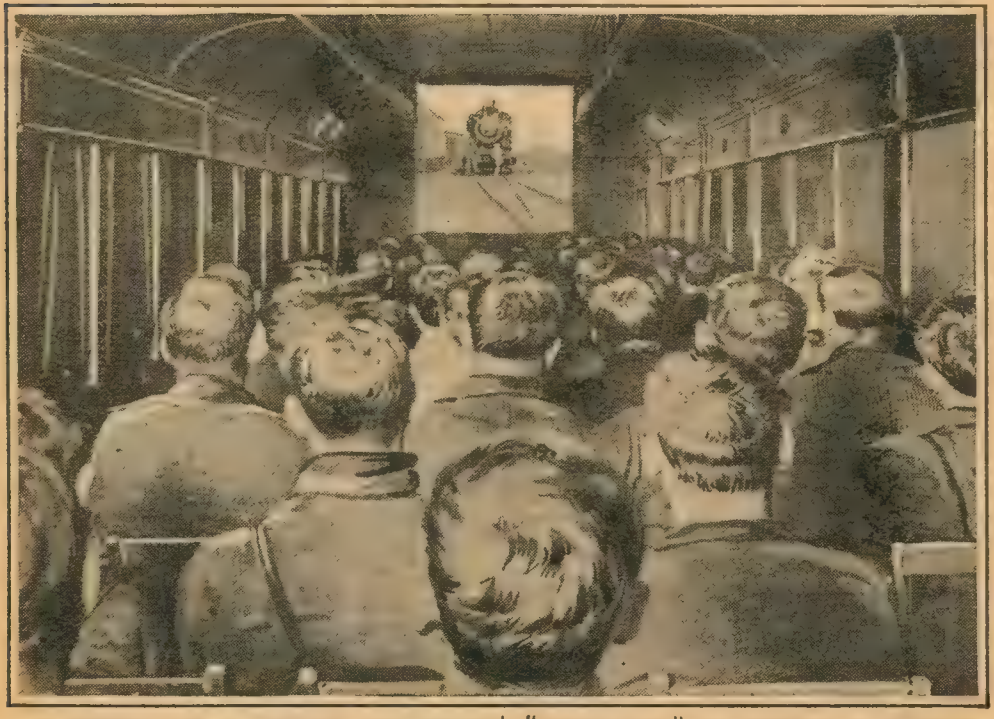
Prompted by the fact that half a dozen big roads have been showing "Steve Hill's Awakening" to their hundreds of thousands of employees, the question is frequently asked, "How did the New York Central happen to go into the motion-picture business?" It didn't "happen" to. It was the logical result of that road's ambition to get one hundred per cent efficiency in the way of results out of the Safety First movement.

Motion pictures tell a story and point a moral better than can be done in any other way except by actually seeing a thing happen. They make a deeper and more lasting impression on the mind than the spoken or the written word. Combined with literature and lectures, they are the best means that have yet been found for making Safety First a twenty-four-hour habit.

Campaign Started Four Years Ago.

The New York Central's Safety First propaganda started about four years ago with lectures, literature, and printed pictures. In a little while stereopticon views were added to the lectures. These views showed safe and unsafe practises—the

CONDUCTOR JIM STEVENS (RIGHT) TAKES JACK FOSTER TO TASK FOR HIS CARELESSNESS, BY WHICH HE RISKS NOT ONLY HIS OWN LIFE, BUT THE LIVES OF OTHERS, AS WELL AS THE HAPPINESS OF HIS OWN FAMILY. AS THE RESULT OF MANY OBJECT LESSONS, ALL OF WHICH ARE SHOWN IN THE FILM, FOSTER RESOLVES NEVER TO TAKE ANOTHER CHANCE.



AN INTERIOR VIEW OF THE NEW YORK CENTRAL'S "SAFETY-FIRST" CAR, SHOWING AN AUDIENCE ABSORBED IN ONE OF MR. DOW'S MOVING-PICTURE PLAYS. THIS CAR IS A RECONSTRUCTED DINER. IT HAS BEEN IN SERVICE A LITTLE OVER A YEAR; IN THAT TIME MORE THAN 100,000 EMPLOYEES HAVE VISITED IT.

right and the wrong ways of doing things. They aroused a great deal of interest, but they did not have the "punch." They did not and could not show adequately the consequences of carelessness. The motion-picture play, with its simple romance and its impressive realism, does this in a manner both vivid and simple.

The New York Central was the first to use its own photoplay in its Safety First campaign among its employees. "Steve Hill's Awakening" has since been shown along the lines of the D. L. and W., the Erie, the Lehigh Valley, the Norfolk and Western, the C. B. and Q., and the Santa Fe. These roads, using the New York Central's original film, have about 40,000 miles of track and more than 400,000 employees.

Second Play Better Than First.

"The House That Jack Built" is in many respects an improvement over "Steve Hill's Awakening." This criticism is strictly permissible, since the writer is the author of both these photoplays. In fact, the writer was the first to produce a motion-picture story of human interest for the Safety education of railroad men. The story of "The House That Jack Built" is more absorbing and covers a wider field of Safety work, as it includes several scenes illustrating the results of unsafe practises in shops as well as those in the operation of trains.

Probably the most thrilling scene is a realistic rear-end collision in which a big engine hauling a heavy train crashes into another train and completely demolishes several cars. This is an actual picture of a real—but prearranged—wreck. It is as startling in its truth as anything that I have ever seen thrown on the screen. It is a genuine yet a fictitious disaster. Like some of the other harrowing scenes, it is necessary in order to impress strongly on the minds of railroad men the terrible consequences of carelessness, and to fill their hearts with a hearty horror of any chance-taking whatsoever.

The title of the story, "The House That Jack Built," is taken from the Mother Goose rime of that name. The lines of the old familiar verse are intertwined with the unfolding of the scenes. The story, in brief, is as follows:

Jack Foster, a brakeman, is a fine type of railroad man, both in appearance and character. He is sober, industrious, and saving. He is building a new home. The opening scene shows him with his wife and their two little children on Christmas morning. They are gathered about the Christmas tree.

It is a picture of unalloyed happiness. Husband and wife are talking delightedly over the prospects of moving into their new house, the building of which is nearly completed.

But *Jack*, although a fine fellow in other respects, has one serious fault — carelessness while engaged in his work. *Jim Stevens*, a conductor, who is his close friend, takes him to task, but *Jack*—happy and confident—listens and answers lightly to his friend's admonitions.

Later, while *Jack* and his family are showing their new house to *Stevens*, the latter continues his warnings. *Mrs. Foster* overhears the conductor tell *Jack* that sorrow will some day cross the threshold of his home if he does not stop taking chances.

Mrs. Foster becomes greatly alarmed over her discovery that her husband is so careless. Her fears grow, and become so acute that she is haunted by thoughts of what may possibly happen. A vision of one of these occurrences flits through her mind. Then there is thrown on the screen one of the most realistic railroad collisions ever shown in a motion picture.

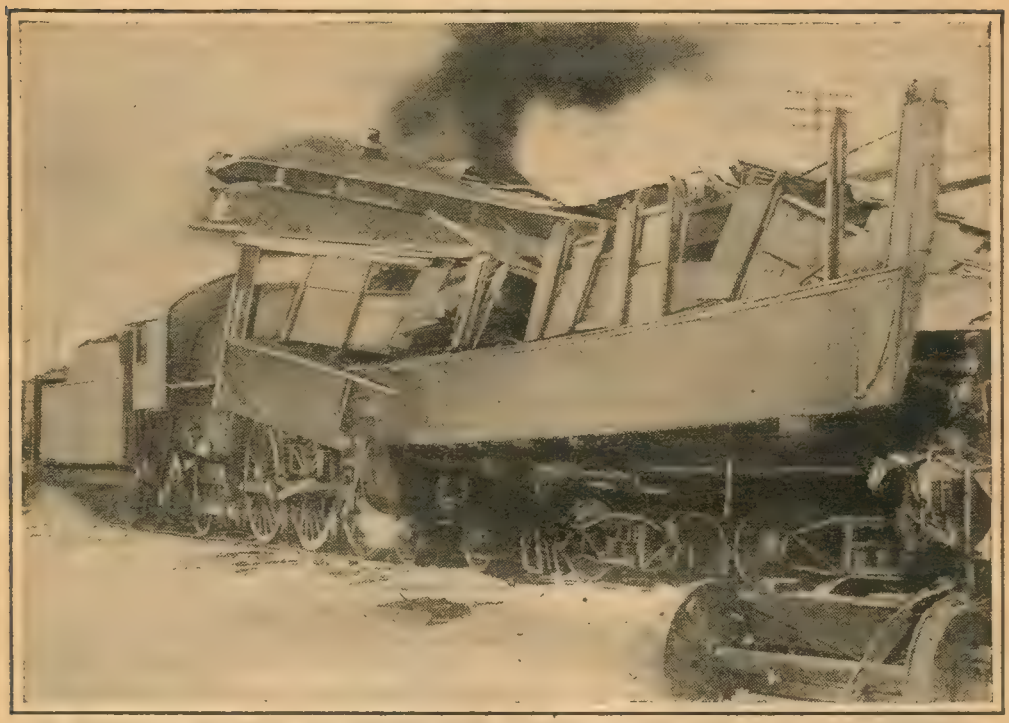
A freight-train moves slowly along, slows down, and stops. Something has gone wrong with the engine. The train is stalled unexpectedly. From the caboose end not much of the back track can be seen because of a curve that hides it from view.

Jack is sent out with a flag to protect the rear end of the train. He goes back a little distance and sits down on a rail to fix his shoe. He is deliberate; what's the use, anyway, of hurrying? There's plenty of time, and his foot hurts.

Rear-End Smash-Up Is Filmed.

Then there flashes on the screen a vivid picture of what is coming, a mile or two away around the curve. A huge engine with a heavy train is dashing along at high speed. Another second and you are looking again at *Jack*, who is getting up and preparing to stroll leisurely back with his flag. Suddenly he pauses, listening, but only for an instant.

Then his ears catch the hum of the rails, growing swiftly louder and louder. He



THIS REAR-END COLLISION IN THE PLAY IS THE RESULT OF BRAKEMAN JACK FOSTER'S NEGLECT TO FLAG PROPERLY—THE CENTRAL SACRIFICED THREE BOX-CARS FOR THE SAKE OF MAKING THIS SCENE REALISTIC.

THE ENGINEMAN OF THE COLLIDING TRAIN REPROACHES FOSTER FOR SHORT-FLAGGING—ALL THE PARTICIPANTS IN THIS PLAY ARE PROFESSIONAL MOVING-PICTURE ACTORS.

knows what it means. A look of horror crosses his face, and he springs forward, running as hard as he can, waving his flag. He holds his arms wide stretched as if he expected by such puny and futile means to stop the onrush of the thousand-ton projectile that is hurling toward him over the rails. He jumps aside just in time to escape it.

You get a glimpse of the tense face leaning from the cab-window. It vanishes for an instant, and you know that the engineer has done all he could to avert the disaster that is inevitable. You see the engineer on the step of the cab, clinging to the grab-irons. Then he drops off and goes rolling down the bank.

Then comes the smash-up. The huge locomotive literally plows through the wooden cars and is half buried in them when it stops.

So vivid is the picture that you seem to hear the crash, the splintering of wood, the rending of steel, the hissing of steam, the screams that follow the brief space of silence when the wreck is complete.

They drag some one out from under the heaped-up ruin—one of the items of human wreckage. *Jack*, the brakeman, the cause of it all because he did not flag properly, comes up. He is panting with fear, shaking, wide-eyed with horror. The survivors of the train-crews see him and rush for him menacingly. The first man to reach him screams something at him, strikes him down, and beats him mercilessly.

Collisions Reduced One-Third.

(There were about one-third fewer collisions on American railroads last year than there were in the twelvemonth before. Even so, they totaled more than 3,500. More than a thousand railroad employees were injured, but only 77 were killed in these accidents.)

Jack's wife becomes hysterical as this vision passes before her. In the earlier scenes it has been shown that "Happiness Was the Malt That Lay in the House That Jack Built"—applying the term to the words of the old nursery rime. As *Mrs. Foster's* mind is tortured by the fear of the possible result of her husband's thoughtlessness, Carelessness is shown to have been "The Rat That Was Eating Happiness, the Malt, That Lay in the House That Jack Built."

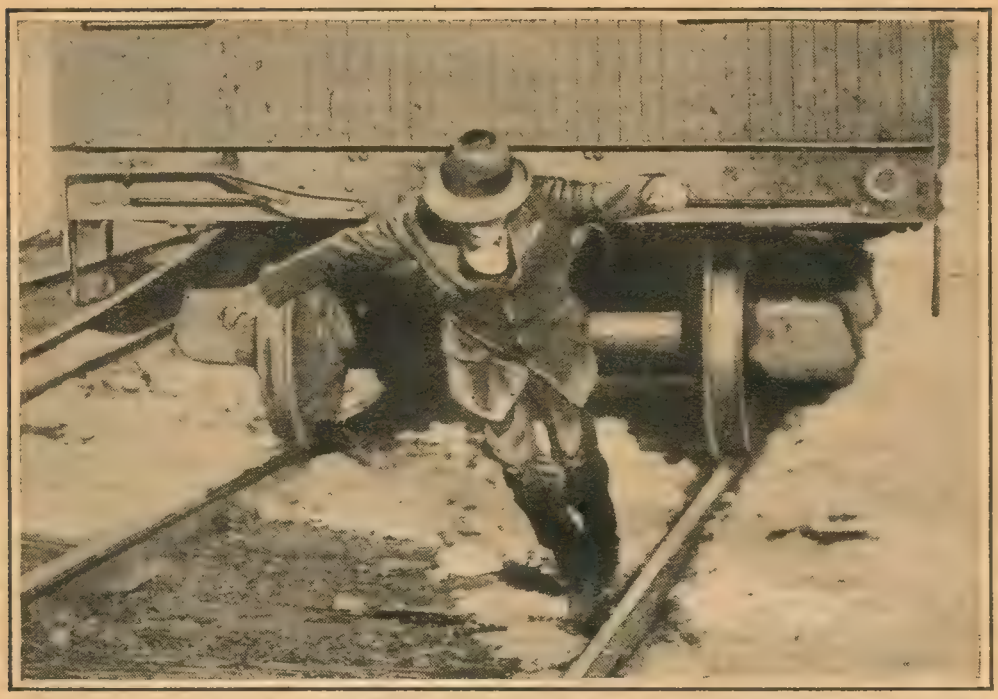
At this point *Mrs. Foster* hastens to the railroad yard to allay her fears. There she overhears her husband and two men talking. One is *Stevens*, the conductor who has been chiding *Jack* for his lack of caution; the other, *Donovan*, an employee who lost his leg because his mind was filled with thoughts of a quarrel he had had at home. As *Donovan* tells his story the action on the screen shows him crossing the tracks, so preoccupied that he does not see the freight-car approaching, which knocks him down and cuts off his leg.

What Jack Saw at the Safety Rally.

Stevens, the conductor, induces *Jack* to attend a Safety rally. During the course of the scenes in the hall where the rally takes place a number of unsafe practises in the yards and shops, and their consequences, are vividly shown on the screen. One sees the result of leaving nails sticking up in planks left carelessly about where persons might step on them; a shopman is seen to lose an eye because he refused to wear safety goggles provided for his protection; a carpenter loses a finger while working at a buzz-saw with the guard removed; a careless brakeman is knocked off the roof of a box-car when a coupling is made (this is especially thrilling); a brakeman goes between moving cars, contrary to instructions, falls, and his arm is run over; an engineman standing between the rails tries to jump on the footboard of a moving engine and falls under the wheels, *et cetera*.

As each of these scenes appears on the screen, "close-up" views of various characters in the audience are shown, and their facial expressions depict the strong impression the vivid scenes make on their minds. A one-eyed man, for instance, viewing the scene in which the man is injured because he was not using goggles, turns to his wife and tells her that was the way he lost his eye. A man with a crippled hand tells his daughter, who sits beside him, that the man in the picture who used the saw without the guard in place paid the same price for his carelessness that he did.

Other "close-up" views that are striking features show some particular part of the picture greatly enlarged so that it fills the entire screen for an instant. In this way the attention is concentrated on the exact thing on which the action of the scene is focused. For example, when the shopman steps on the nail, he is seen walking toward



MORAL TO THIS PICTURE: DEVOTE YOUR ATTENTION TO YOUR BUSINESS. DONOVAN, A YARD EMPLOYEE, IS RUN DOWN BECAUSE HIS MIND WAS SO BECLOUDED BY A QUARREL HE HAD HAD AT HOME THAT HE DID NOT KEEP HIS WITS ABOUT HIM.

DON'T GET EXCITED. HE IS NOT EVEN SCRATCHED. THE ACTOR'S LEG IS DOUBLED BACK UPON ITSELF AND CONCEALED BY HIS TROUSERS, WHILE A DUMMY FOOT IS SO ARRANGED AS TO GIVE THE IMPRESSION THAT IT WAS SEVERED FROM THE REAL LIMB. IN THE MOVING PICTURES THIS ILLUSION IS CARRIED OUT WITH A GHASTLY APPEARANCE OF TRUTH.

the plank from which the nail protrudes. Then, for a few seconds, is shown an enlarged view of his foot, filling the entire screen, just as it steps on the ugly looking nail to which attention is for the instant directed.

Following the Safety Rally, *Jack* and his wife return to their home. *Jack* is greatly impressed by what he has seen and heard. He bends over the bed in which their two children are sleeping and makes a vow to banish carelessness forever. The play ends with the statement:

> Resolution Became the Cat
> That Killed Carelessness, the Rat
> That Was Eating Happiness, the Malt
> That Lay in the House
> That Jack Built.

This photoplay was staged for the most part near Peekskill, on the New York Central. Great pains were taken to employ competent and clever actors in its production. The production was directed by Charles E. Davenport. Twenty-five professional actors and actresses were used.

Of the principals, the work of Al Thomas as *Jack*, and Miss Iva Shepard, as *Jack's* wife, was particularly good, as was also the work of George Henry, who portrayed the conductor, who was a booster for Safety First. Two children, one a very sweet little girl of three, the other a boy a year older, appear in a number of scenes, and add an irresistible touch of human interest.

Actor Jolted by Leap from Cab

The "engineer" who jumped from the cab, just before the collision, was a professional motion-picture actor. He got a bad jolt when he made his spectacular leap. The real engineer does not appear in the picture. He stayed in the cab during the wreck, but neither he nor any of the other railroad men were injured in the least.

The "brakeman" who did the startling fall from the top of the freight-car was also a professional. He specializes in such things. Even the one-eyed man in the lecture scene was a motion-picture actor. He has a glass eye which he removes whenever the exigencies of his work demand it.

A few employees—real railroaders—were used as "fillers-in" where scenes called for a number of people. Railroading and motion-picture acting are two distinct professions. Occasionally the employment of railroad men as minor actors in the production of photoplays has been tried, but it has not worked out well—not because of lack of talent, but owing to lack of training and experience.

The amateur actor cannot control the impulse to look at the camera. In motion-picture acting the players must give no indication that they know there is such a thing as a camera. They are trained to forget it.

Cool Nerve Needed to Stage Accidents.

In the scenes where a leg or an arm appears to be cut off under the wheels, the actor has his real limb doubled under him or otherwise concealed. It is a dummy leg or arm that suffers. Yet it requires pretty cool nerve and close calculation to manage this successfully.

In a word, if you want to show in motion pictures the right way to do a certain thing connected with the operation of trains, the trained railroad man can illustrate this better than any one else. But when it comes to staging and filming a thrilling human-interest photoplay with strong dramatic effects, professionals must be employed.

Staging the wreck-scene involved considerable preparation and some expense. The cars that were smashed up were old rolling-stock. They were about ready for the scrap-heap, although they did not look it. In order that they might be torn to pieces effectively, and that possible injury to the locomotive might be minimized, several precautions were taken. The heavy underframes beneath the cars were removed, for instance, as were the truss rods, and the leading car was chained to the rails for the purpose of offering sufficient resistance to the shock of the collision.

The locomotive that dashed into the cars and wrecked them was one of the heaviest and most powerful in use on the New York Central lines. In the picture it seems to be approaching at about sixty miles an hour. In reality it was coming forward at about one-fourth that speed. The apparent velocity was attained by "speeding up" the camera.

"The House That Jack Built" will be shown to employees of the New York Central in the "Safety First car." It will also be shown at Safety rallies and in motion-picture houses at important railroad centers. Probably it will also be exhibited by the Safety committees of other roads, as was "Steve Hill's Awakening."

MILLIONS TO SAVE MINUTES.

Cut-Offs Are the Scissors with Which the Railroads Snip the Forelock off Father Time—And an Expensive Shearing It Is.

BY NEWTON A. FUESSLE.

THE chief engineer of an American railroad wages unending war against time. Minutes are his foes. Every time he can devise a way to kill them off and cart them away he is happy. The minutes which comprise the schedule of any given run are forever the target of his assault. They make him see red.

The greatest victories in this perennial crusade of the railroads against time are embodied in their famous cut-offs. In the great job of straightening crooked tracks by means of cut-offs the railroads do not hesitate to pour millions of dollars and years of labor into the funnel of the tremendous tasks. In many cases they spend at the rate of a million dollars per minute saved in this unending race against time.

The saving of a single mile in train-runs of hundreds of miles means not only saving of time, but an enormous saving of rolling stock and fuel. Too, it means smaller and fewer engines, and the ability to haul heavier loads.

Spent $220,000,000 To Save Time.

The Pennsylvania Railroad has spent over $220,000,000 in various time-saving improvements. Its construction of its New York Terminal meant an expenditure of considerably more than $1,000,000 per minute of time saved the traveling public.

The Pennsylvania has bored through mountains, tunneled rivers, and actually blown the heads off of five or six mountains in its titanic task of shortening tracks and lowering grades. Hardly a mile of its old track between Pittsburgh and Philadelphia and between Philadelphia and Harrisburg remains.

This road spent $70,000,000 in cold cash to reduce grades and speed up traffic between Pittsburgh and Philadelphia, saving ninety minutes in running time—an average of $800,000 per minute of time saved. It meant dynamiting mountains, straightening track, and reducing grade—anything and everything to draw tighter and tighter its strap of steel between its termini.

Between Philadelphia and Harrisburg it reduced the running time for its express trains from three hours to one hour and fifty-five minutes, at a cost of $13,000,000. It was cheap at that—a bargain with nature—for it cost only $100,000 per minute saved. The greatest saving was to the freight department, for after the completion of the big job fewer extra locomotives have been required, freight congestion was overcome, and less interruption of traffic had to be contended with.

Increased Efficiency As Much As 40%.

These improvements—these heroic drives against time—have enabled the Pennsylvania to increase its efficiency, it is estimated, from ten to forty per cent.

The latest cut-off to be completed is that of the Lackawanna Railroad—between Clark's Summit and Hallstead, Pennsylvania. When this road got through tightening its belt of steel its balance-sheet showed the expenditure of no less than $12,000,000 and a saving of a scant 3.6 miles. In order to save Phoebe Snow 3.6 miles between New York and Buffalo, the Lackawanna poured this enormous sum of money into the engineering feat which immortalizes the humble places called Clark's Summit and Hallstead.

Last November the first train traversed the great cut-off. The cut-off itself is 39.6 miles in length. It is substituted for 43.2 miles of almost the first stretch of railroad

GREATEST CONCRETE BRIDGE IN THE WORLD.

THE TUNKHANNOCK VIADUCT, WHICH FORMS PART OF A GREAT CUT-OFF RECENTLY COMPLETED BY THE DELAWARE, LACKAWANNA AND WESTERN IS 240 FEET HIGH, MORE THAN 100 FEET HIGHER THAN THE LEVEL OF THE BROOKLYN BRIDGE ROADWAY. ITS LENGTH IS HALF A MILE. THIS GIANT VIADUCT HAS TEN SPANS OF 180 FEET EACH AND TWO OF 100 FEET EACH. THE HEIGHT AND SWEEP OF THESE SPANS MAY BE JUDGED BY COMPARING THEM WITH THE THREE DOTLIKE FIGURES OF MEN IN THE FOREGROUND. THE MATERIAL ENTERING INTO ITS COMPOSITION INCLUDES 4,500,000 CUBIC FEET OF CONCRETE AND 2,280,000 POUNDS OF REENFORCING STEEL. EACH OF ITS FOUNDATIONS WAS CARRIED 96 FEET TO BEDROCK. THE CUT-OFF OF WHICH THIS STUPENDOUS WORK FORMS A PART SAVES THE LACKAWANNA 20 MINUTES ON ITS PASSENGER-TRAIN SCHEDULE BETWEEN NEW YORK AND BUFFALO, AND A FULL HOUR ON ITS FREIGHT SCHEDULE.

From a photograph by the D. L. and W. R. R.

constructed in that section of the country. This stretch was built sixty-four years ago, and bore the name in those days of Liggett's Gap Railroad. Its builders did the best they knew how, little dreaming what their successors would do to their engineering efforts.

It lay through a rough country, and necessarily was a gnarl of twists and turns. As time wore on, Lackawanna engineers regarded as an unmitigated nuisance the wear and tear and slowing down which these few miles of an otherwise perfected railway system inflicted upon its traffic. They figured and figured in an effort to find a way to avoid rebuilding practically forty miles of track. In the end they became reconciled to the idea of the cut-off.

The result, to put it again into figures, represents a maximum grade of .68 per cent, against a previous maximum grade of 1.23 per cent—and a total curvature of 1,560 degrees, against a previous total curvature of 3,970 degrees.

Reduced to time, the cut-off saves Lackawanna schedules twenty minutes between New York and Buffalo for passenger-trains, and saves freights fully an hour. More-

over, through reduction of traction, trains can now be moved with two engines which previously required five.

One of the engineering mountain-peaks of this range of achievement is the Tunkhannock Viaduct. It is 240 feet high, over 100 feet higher than the roadway of the Brooklyn Bridge, and half a mile long. It is by all odds the largest concrete bridge in the world, with ten spans of 180 feet each, and two of 100 feet each.

Some 4,500,000 cubic feet of concrete and 2,280,000 pounds of reenforcing steel were woven into its rugged texture. Each of its foundations was carried down to bedrock, which is to say that these mighty tusks have bitten ninety-six feet into the earth. Crossing trains are guarded by massive parapet walls three feet thick and rising four feet above the level of the track.

A Short-Cut across Great Salt Lake.

The Southern Pacific has taken one of the most tremendous wallops at the face of the earth in the history of railroad engineering. The result was its stupendous Lucin cut-off. Its twelve-mile trestle hurls a steel highway across Utah's famous Great Salt Lake.

The Lucin cut-off saves 120 minutes at a cost of $35,000 per minute. The old running-time between Ogden and Lucin was cut from six hours to four hours. Trains traversing the old route had to mountaineer up grades of ninety feet to the mile, and required often three and four locomotives to do the pulling. Since the completion of the Lucin cut-off a single engine does the work and the saving in coal is monumental.

The word parsimony has long since been hurled bodily out of the virile vocabularies of the railroads. When it comes to a fighting chance to knock another stubborn minute out of the ring, they put on their gloves and begin the battle.

In a single year the Great Northern spent $5,000,000 in building tunnels, bridges, and making grade reductions. James J. Hill had become tired of looking at tracks that resembled snakes writhing across the landscape because they followed old post-roads, and had for years been content to dodge hills, ravines, rivers, and mountains.

Railroads now run as the crow flies, or as nearly so as possible. For years the Missouri Pacific, once as crooked as a streak of Ohio lightning, has been getting itself straightened out, often spending $1,000,000 per mile to demonstrate anew that a straight line is the shortest, not to say swiftest, distance between any two given points.

In many cases it is found cheaper to abandon old roads entirely and to strike out afresh. Millions are being constantly spent by the railroads to bridge obscure streams whose names never get into the geographies, and which are never counted among our famous cut-offs. Thus the Wabash has spent $20,000,000 out of a $25,000,000 appropriation for improvements on bridge-building alone.

The Santa Fe's ruthless battle with time has resulted in the famous Belen cut-off in New Mexico. This shortens the line seven miles between Texico and Rio Puerco and saves a climb of some 7,660 feet to cross Raton Mountain.

The old grade with which the Santa Fe had to contend was one of the steepest railroad lines in the country—in some places amounting to one hundred and eighty-five feet to the mile, which is cruel climbing for trains. Here even ordinary passenger-trains required extra locomotives, while freights had to have three and four of the heaviest and most powerful locomotives built to negotiate the climb.

This cut-off was wrought at a total cost of $10,000,000. It saves twenty minutes' time. That is to say, the Santa Fe spent $500,000 for every minute saved.

Erie's Guymard Cut-Off Saves Coal.

Work on the Erie Railroad's Guymard cut-off was begun in September, 1905. This engineering feat was for the purpose of reducing maximum grades from 1.25 per cent to .02 per cent for east-bound trains, and to .06 per cent for west-bound trains. It was also to reduce maximum curvature from seven degrees to one degree thirty minutes. In other words, this Erie cut-off enables nineteen locomotives to haul as many cars between Port Jervis and Jersey City as thirty-two did previous to the improvement.

The Baltimore and Ohio Railroad has also been crossing swords effectively with time. This road's big cut-off in Maryland is known as the Alberton cut-off. It was completed in 1907 and took seven years to build.

It reduces maximum curvature from

twelve degrees to seven degrees, and grades from .9 per cent west-bound to .5, and from .8 to .5 per cent east-bound. These fractional figures are most insignificant to the lay mind; yet the B. and O. found it amply worth while to spend $750,000 on the job, which also does away with 542 degrees of central angle of curvature. The construction gangs on this job burrowed like moles through granite, sand, loam, and clay.

Eight years ago the Union Pacific Railroad completed one of the notable cut-offs of American railroading. It is known as the Lane cut-off, and crosses the Rappio Valley in Nebraska, just out of Omaha. This great blow at Father Time saves the Union Pacific eight miles on its main line. The great bridge across the Rappio Valley cost $2,000,000 to construct.

Here was another amazing example of a modern railroad's eagerness to pour out millions to save miles. The busier most of us get, the more we tend to run around in circles. But the busier the railroads get, the more sternly they adhere to the principle of the straight line for theirs. Railroad engineers proceed on the principle that the straightest and quickest, though by no means the cheapest line, is the best and shortest distance between two points.

Flagler's Seagoing Railroad.

After the close of the Spanish-American War it occurred to Henry M. Flagler that the long span of sea which separated the United States from Cuba augured ill for the tremendous trade opportunities which the outcome of the war brought into existence. He therefore set about devising some means of compressing the miles which intervened. His final decision was one of the most daring dreams of American railroading. Its eventual fulfilment resulted in the Key West Extension of the Florida East Coast Railway.

This stands to-day as one of the greatest cut-offs in existence. It conquers not mountain, ravine, river, or lake, but Neptune himself. On January 22, 1912, this marvelous extension was thrown open to train traffic. Trains were enabled to travel by rail from Miami, Florida, to Key West, whence the cars are ferried over to Cuban soil. In other words, Henry M. Flagler's defiance of the sea draws New York City and Cuba closer together, and passengers and freight may proceed from either of these points to the other entirely by railroad route.

In 1905 the job was undertaken. Mr. Flagler looked about for a man big enough to get under the load, and picked out Joseph R. Parrott, a broad-shouldered, square-jawed man in the forties, who had been a Yale athlete. Parrott hired J. C. Meredith as his chief engineer, and the monumental job was swiftly under way.

Its stupendous difficulties were, one by one, heaved out of the way. Fifteen million dollars flowed into the venture of tying up Florida's mainland with a speck of coral reef set far out in a tropical sea.

Twenty-two miles of the distance between Miami and Key West, one hundred and twenty-eight miles in all, lay over mainland. The rest of the perilous right-of-way crept along a string of keys, or small islands which skirted the coast, then veered off into deep water toward Key West.

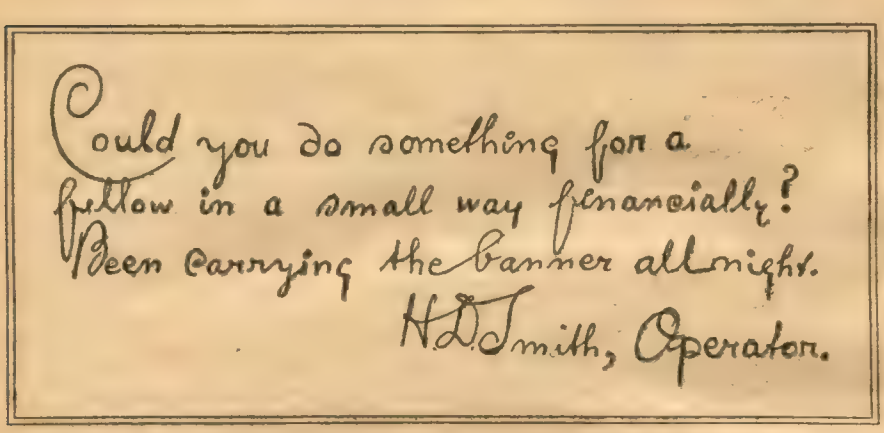
Five permanent bridges were put in between the mainland and Knight's Key. Long Key Viaduct is the longest structure of the arch type in the line. This viaduct contains one hundred and eighty semicircular arches with fifty-foot spans thrust right across sheer open sea. The train-level rises thirty feet above high tide.

Flagler, who was well into the seventies at the time he conceived of this daring lashing together with steel of Florida and Key West, lived to see the realization of his dream.

DERELICTS OF DOT AND DASH.

Alack, for the Good Old Days When the Boomer Op Found a "Sine" Wherever He Hung Up His Hat!

BY ROGER FISON.



IT was while I sat at my typewriter at the *Daily Press*, copying news despatches from their leased telegraph-wire, that the foregoing request was thrust upon my vision. Its author, dusty and shabbily clad, stood near by, his unabashed countenance highly expressive of an impatient interrogation-point.

And because his handwriting bore resemblance to that of the wandering telegrapher of ten or twenty years ago I was curious to know whether he possessed any of the telegraphic skill so common to the roving "brass-pounder" of the old school.

"Wait just a minute," I said. Presently my chattering telegraph-instrument paused for a moment's breath, and H. D. Smith, hopeful and expectant, stepped to my side. "Where—" I began.

So did he. Evidently divining my intended question, H. D. S. began with lightning rapidity to enumerate the places of his previous employment. They were many; according to his accounts, he must have been working at telegraphy for half a century, though he was not a day older than thirty. Helena Western Union office was the last place he had worked—so he said.

"I'd 'a' been there yet," he concluded with a Twentieth Century Limited wind-up, "but I was flaggin' under the name of Haley. 'Nother fellow in that office was usin' the same name. Boss got wise, and I had to beat it.

"Say, bo, New York's the only town for a telegraph-operator. Why, I'd rather be a gas-light on Broadway than a whole power-plant in Helena. Let me sit in a while. Copyin' press is my long suit."

He "sat in," and I went out. When I returned to the wire five minutes later he was still there, nervily pecking away at the typewriter keys, and I naturally concluded he was a competent telegrapher.

"Well, Smith—"

"McCumber," he smilingly interrupted. "George W. McCumber—that's my right name."

A new name every fifteen minutes!

"Here," thought I, "is a *real*, dyed-in-the-wool boomer."

I made no further comment. After I had

complied with his written request he discreetly vanished, his unshaven countenance wreathed in a pleasant grin.

Then followed a discovery!

As I picked up the sheet of copy my visitor had typed I became aware that I had bestowed four bits upon an individual who was without doubt a first-class boomer, but who, when it came to telegraphic ability, was merely a poor counterfeit of his brother wanderer of ten or fifteen years ago.

Smith-McCumber's first item, the London stock-market, stated that "Ameifan secrets opened dum." I changed it to read "American securities opened dull." Then followed "Modco" for Mexico," "breaker-in-law" for "brother-in-law," "valican" for "Vatican," "sentfield" for "sentenced," and a number of other equally absurd errors.

Old-Time Boomer Was a Boss Telegrapher.

What a contrast was this copy to that turned out by the wandering telegrapher we used to know! To say the least, the boomer of that day possessed unusual telegraphic ability. Skilled in all branches of telegraph work—railroad, commercial, brokerage, and press—he could turn out first-class work under any and all conditions.

When he tackled a newspaper wire, or any other kind of telegraph-wire, he could, to use the vernacular, "hold it down," no matter whether he copied with a pen, a stylus, or a typewriter. He was the telegraphic hero whom all young "hams" were eager to worship.

My first encounter with this type of telegrapher I shall not soon forget. Having served two years as a telegrapher on Western railroads, I became ambitious to learn the ins and outs of commercial telegraph work, and finally succeeded in "getting a sine" with the Western Union Telegraph Company at St. Paul. I had not been employed long at that big relay point when Red McNeil appeared on my telegraphic horizon. It occurred in this way.

Lost one morning in the sea of other telegraphers who worked in that large office, I found myself at a certain telegraph-set, struggling hard to capture some erratic Morse characters that an ambitious railroad telegrapher was perpetrating from a wild-woods station in upper Minnesota. Presently a long-limbed and somewhat seedy-looking operator with a very pleasant countenance sat in next to me and began copying a much avoided fast sender on a wire connected with St. Cloud.

Hams who tackled the St. Cloud wire usually fled therefrom in terror. Yet here was an operator who, as he gracefully wielded a dirty stub penholder, appeared neither worried nor found it necessary to interrupt the swift flowing of clattering dots and dashes that leaped from the St. Cloud instrument to his well-trained ear. He turned out message after message in the most beautiful handwriting imaginable—the letters were large and round, all perfectly and evenly formed. Each message bore his telegraphic sign, "M C."

So astonished and fascinated was I by this skilled performance that I opened my key and stared in open-mouthed wonderment.

"My! I wish I could write like that," was my youthful comment.

"You'll soon be able to," smiled "M C" in a paternal sort of way, all the while carefully sizing me up. Then he added in a lower tone: "Say, you don't know of any one around here who has a quarter, do you? I gave a poor friend down-stairs the last cent I had this morning."

Frantically I dug into my pocket for that quarter. To think that this gilt-edged telegrapher would deign to confide in a common boy operator like me!

"M C" had scarcely tendered his thanks for the loan when a traffic chief appeared on the scene and summoned him to a fast wire in the quad department.

"Don't know that fellow, eh?" spoke an old chap with red whiskers who moved in next to me. "Why, that's Red McNeil—'Fine-Business Red,' they sometimes call him. Nobody knows his *real* name. Red's worked all over the world. He's some operator, boy!"

Red Does the Paternal.

This intelligence not only increased my admiration for McNeil, but made me feel all the prouder to think that I had been allowed to loan him a quarter. During noon lunch-period that day, while returning from a near-by restaurant, I accidentally sighted my newly discovered idol. He was standing on the sidewalk in front of the office in company with several other "extra-list" men. Would he recognize *me*—a common ham—in the presence of his experienced brother telegraphers?

He did. More. He beckoned me off to one side. I saw his companions smile, but assumed that they were jealous because of the attention McNeil was bestowing upon me.

"Son," said the old boomer in a low, confidential tone, "I noticed your sending this morning, and I want to say that you have in you the makings of a fine operator. No, don't thank me. Just listen! While I'm here I'm going to put you next to several things that will help you to become a *real* operator. I wouldn't do this for everybody, but—"

"I'm certainly much obliged to—"

He seemed not to hear me, but went right on.

"As I was going to say, I've taken quite an interest in you and your telegraphing. What I want now is to get squared at some hash-house; you know an operator's got to eat. That quarter you loaned me I gave to an old pal who just caught on up-stairs. Of course, if no one can square me I can get along somehow, for—"

"Mr. McNeil—" I blurted out.

"Call me Mac," he interrupted, bestowing a friendly pat on my shoulder.

"Mac," I proudly repeated, at the same time pulling a small card from my pocket, "this meal-ticket is good at the Harvest Lunch, two blocks up. You take it and get your dinner punched out of it. You can hand it back to me this afternoon."

I Square Mac for the Eats.

Mac accepted it with what appeared to be reluctance. Then, casting a most benignant smile in my direction, he started slowly down the street.

Immediately I began to feel like a first-class telegrapher.

Four or five hours later, however, I felt hungry—and worried. Neither Mac nor my meal-ticket had put in appearance.

Finally I began making a few inquiries.

"Yes," I was told; "Red McNeil *is* a gilt-edged telegrapher. But—he sure does hit the booze pretty hard."

I asked no more questions. I simply hoped and waited, in the mean time borrowing a quarter for my supper. McNeil had received my last bit of change as well as my (brand-new) five-dollar meal-ticket.

The next morning I was at least a more enlightened telegrapher, if not a more skilled one. The all-night traffic chief was responsible for this enlightenment.

It seemed that McNeil had sold my five-dollar meal-ticket for two dollars, after which he had succumbed to the subtle temptations of his old enemy, John Barleycorn. When he had squandered his last farthing he returned to the thirteenth floor of the sky-scraper containing the Western Union's operating-room, and because several kind-hearted telegraphers prevented him from jumping out of a window he retreated *via* elevator to the street, and there approached a husky pedestrian, hurled objectionable epithets at him, then challenged him to mortal combat.

The pedestrian promptly retaliated by despatching "M C" to the sidewalk. In falling "M C's" head struck the curbing, resulting in a fractured skull. He was taken to a hospital.

Six weeks later, shortly after his discharge from the hospital, he fell from a moving freight-train and swiftly passed out from this sorrowful vale of indiscretions.

Antipass Law Is Hard on the Tramp Op.

Wanderers of this class are gradually vanishing from the telegraphic field. To-day they cannot so easily travel about the country as they did before the days of the antipass law. Prior to that time the wandering telegrapher experienced little difficulty in securing transportation or in obtaining employment—especially railroad-telegraph work—in any section of North America.

The jobless boomer had simply to hunt up a railroad telegraph-office, call the chief train-despatcher—who might be hundreds of miles away—on the train-wire, and apply for work. The chief, who generally needed an extra man, would wire the applicant a telegraph pass. After reporting to that official the boomer very often worked only a few days, and on his departure frequently received a pass to the end of that road.

But times have changed.

To-day few railroads will risk hiring a telegraph-operator in this manner—especially a boomer. He must report direct to headquarters.

Several of the large lines, when they employ an operator for a distant point, provide him with transportation, which as a rule never reaches his hands, but is handed direct to the conductor on whose train he will ride.

On other roads the telegrapher applying for work must even sign a contract agreeing to remain with the company a certain number of months providing he is given employment and a pass. *Once* the boomer could walk into the headquarters of a transcontinental railroad in St. Paul, hire out for a telegraph job on the Pacific coast, get free transportation, and on reaching his destination work a few days, then resign. To-day he finds it hard to get beyond the office-boy.

In days gone by, when fewer typewriters were used in telegraphy, when automatic sending and receiving machines were almost unknown, and when the telegraph companies and the railroads depended greatly on the services of the telegrapher who was a fast hand-sender and a skilled penman, indiscreet acts on the part of the boomer were more leniently dealt with. Then his indiscretions were tolerated mainly because of his unusual telegraphic ability.

The boomer of that period, in addition to being a first-class operator, often proved to be a congenial companion and a most prolific and imaginative yarn-spinner—almost a genius in the latter respect.

During hard-luck periods in the telegraphic field he could turn his hand to a variety of other vocations, even to working in a sawmill or washing dishes in a restaurant.

"BB" Jack of Many Trades.

To this class of boomers belonged "BB." He was one of the best-natured, most traveled, and most daring wanderers I have ever encountered.

It was one night in 1901, after an absence of two years, that I accidentally met "BB." on a main thoroughfare in Topeka, Kansas. He had just returned from one of his long-drawn tours. I had previously worked with "BB" in Canada, and when now he started in to relate his latest adventures I gladly remained silent and listened.

"Where've I been since I last saw you?" he grinned. "Where haven't I been? Shipped out of New York six months ago for Panama. When I landed there got a job on the new railroad OS-ing nights. Too many mosquitoes, so I wired in my resignation.

"Company said they'd hold back my pay if I quit 'em on short notice. I showed a native what a good ticket business I was doing at the station; told him I owned it. He bought the whole works for fifty cash—just what the company owed me. I beat it further south then. Hit a cold-storage works for a job. Told the head push I'd take any kind of work. He asked me if I'd ever run a gas-engine.

Posed as a Gas-Engine Sharp.

"I knew as much about gas-engines as a two-year-old knows about firing a steam-locomotive. Anyway I told him I was right at home with 'em; been round 'em all my life. Says he: 'Go out to Bayou at 3 P.M. and take charge of refrigerating plant.' When I got there, found it was *some* ice-works. I monkeyed round a little, got the hands to do most of the work till I got next to things. Just a little nerve, see!

"In three days I knew more about that plant than if I'd taken a full course in gas engineering. Stayed there three months. I'd 'a' been there yet, but that greaser I'd sold the station to didn't want to sell it back to the company. Course, I had to duck.

"I'd saved up a roll, though, and I blew for Vera Cruz. Hiked from there to Mexico City. Only there three hours when I met an old pal on the street—chief despatcher on the Mexican. Fixed me up for a trick despatching right on the spot.

"I was sure rollin' in luck—two hundred dollars a month, good old gold at that! Fine business for three weeks. One night I put two passenger-trains together. Sent a couple of Mexicans to Beulah Land.

"Your Uncle Ned didn't wait for an investigation or a two-by-four prison cell. Chief advanced me my salary, and I hit the grit. Knew they'd be on the lookout for me. I hikes to the Mexican Central's agent with my three-hundred-dollar roll. We were good friends. Two hours later your Uncle Ned was sealed in an empty box car labeled:

PERISHABLE GOODS. BONDED TO EAGLE PASS.

"Had a bunch of grub, plenty of bedding. Knew how to get out when I was ready, and the train-crews were all wise. When I crossed the border, thirty hours later, squared it with the trainmen and beat it for San Antonio.

"Here I am—dead broke. How can you stand this bunch of corn-huskers? Say, it's eleven-thirty. I've got to beat it. Goin' to get squared over Rock Island for Kansas City; got a sine with a newspaper there. Lemme have a dollar. Thanks. So-long!"

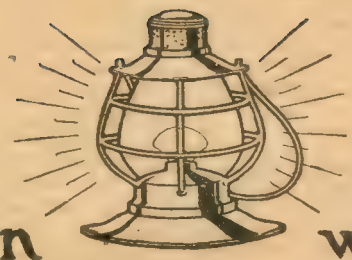
He rushed off with my one-spot—headed for Kansas City. That story was *worth* a dollar.

Soon this type of wandering telegrapher will have vanished. Telegraph officials no longer countenance his unsteady habits. Railroads are not so willing to help him over the road as of yore. A pathetic figure is he in the dot-and-dash realm of to-day.

MEMORIAL TO WESTINGHOUSE.

THIS BRONZE TABLET TO THE INVENTOR OF THE AIR-BRAKE WAS SCULPTURED BY LORADO TAFT. THE INSCRIPTION READS: "GEORGE WESTINGHOUSE, MASTER WORKMAN, 1846-1914. INVENTOR — FOUNDER — ORGANIZER. AS A TRIBUTE TO HIS MEMORY THIS TABLET IS ERECTED BY THE VETERAN EMPLOYEES ASSOCIATION, WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY—1916." THE TABLET IS FOUR BY THREE FEET.

By the Light of the Lantern



Ask us what you want to know

WE want to be as useful as possible to our readers, but, because of the great popularity of this department, we are obliged to impose certain restrictions. It is limited to the answering of questions of an informative, technical, or historical nature only. We cannot answer requests for positions or give information regarding employment. All letters should be signed with the full name of the writer, as an indication of his good faith. We will print only his initials. The editor begs that readers sending in questions will not be disappointed if the answers do not appear as early as expected. It frequently takes weeks to secure correct answers, owing to the complexity of the questions. All questions are answered free of charge. The editor earnestly requests his readers to bring immediately to his attention any errors they may find in this department.

HOW is the Mallet type of engine operated; that is to say, how is it started and stopped?

(2) How are the block systems of the Chicago, Milwaukee and St. Paul Railway worked?

(3) Will you publish or tell me how I can obtain a drawing of the Mallet compound locomotive?—P. N., Milwaukee, Wisconsin.

(1) The Mallet type of locomotive is started and stopped in the same way as a simple engine. You will understand that a simple engine takes live steam from the boiler, and after one expansion in a single cylinder it is exhausted to the atmosphere, whereas the Mallet compound consists of two separate and independent engines, one fixed to the boiler, and the other swinging from a center and slidably connected to and under the front end of the boiler.

The rear engine takes the live steam from the boiler, and after working it there exhausts it through a receiver pipe having flexible joints to the forward engine, which works the steam at low pressure, then exhausts it to the front end and stack.

There are two types of Mallet compound locomotives in general use in this country, the Baldwin and American Locomotive Compound types. The difference in the construction of the two is the manner in which the steam is admitted to the low-pressure cylinders when starting. The Baldwin engines are equipped with a starting-valve which is operated manually from the cab, and by means of a pipe steam is admitted direct to the receiver, thus getting the use of the front engines in starting.

In the American type, instead of having a manually operated starting-valve, an intercepting-valve is employed, so designed that when the throttle is open live steam passes by the intercepting-valve, through a reducing-valve, and into the receiver and from there to the low-pressure steam-chests, and continues to pass in this manner until the pressure in the receiver is built up to about forty per cent of the boiler pressure, when the intercepting-valve automatically closes, allowing the engine to work strictly compound thereafter. It will thus be seen that when starting, a locomotive of this type is operating the same as a simple engine.

(2) This road has in operation 1,328 miles of automatic block signals and 3,101 miles of block signals of the non-automatic type. The automatic block signal is worked by an electric or pneumatic agency, which is controlled by the passage of the train into, through, and out of the block section to which the signal is connected.

The entrance of a train sets the home signal at stop, and the clearing of the block section by the passage of a train out of it sets that signal at clear. The entire apparatus is so arranged that the entrance of a car from a side-track by accident or the misplacement of a switch will set the signal at stop.

The non-automatic block signal or manual block system is controlled by an attendant who moves the block signals at the block station on information conveyed to him by telegraph, telephone, or electric bells sounded in accordance with a prescribed code. In the controlled manual block system the introduction of electric locking-devices attached to the levers by which the signals are moved requires the simultaneous action of the signalmen at both ends of the block in order to clear a signal, admitting a train into the block.

We could not publish in detail in this department the entire operations of the various systems of block signaling. C. H. Claudy's articles on the subject, appearing serially in THE RAILROAD MAN'S MAGAZINE at the present time, will furnish you any further information you desire on the subject.

(3) It is not of sufficient general interest for us to publish a detailed drawing of the Mallet

compound engine. Write the American Locomotive Company, 30 Church Street, New York. They will probably supply you a bulletin containing such a drawing; but as these things are not prepared for general distribution, it would be well for you to explain what you want it for.

J. W., Neshanic Station, New Jersey.—At last reports the operation of the New Jersey and Pennsylvania Railroad had been discontinued. This was an independent line extending 26 miles. The rolling-stock consisted of 2 locomotives and 12 freight and miscellaneous cars.

S. A., Parkersburg, West Virginia.—The cost of building a mile of railway varies according to the kind of country through which it is being constructed. On the slightly undulating ground of Ohio the cost averaged about $40,000 per mile, while on the plains of Texas estimates were furnished as low as $19,000, exclusive of real estate, stations, equipment, *et cetera*. To these sums must be added about $10,000 for right-of-way and a similar amount for equipment, and a fair estimate can then be arrived at. The cost of constructing a mile of double track ranged from $50,000 in the State of New York to $154,000 in West Virginia, without equipment.

PLEASE explain how the air-pump works.

(2) Could a boy of seventeen years of age having some knowledge of locomotives get a job in a roundhouse?

(3) What is the meaning of "time freight," "manifest," and "expedite"?—C. D., Peru, Nebraska.

(1) The air-pump or air-compressor is attached to the locomotive for compressing air. It consists of a steam and air cylinder, the pistons of which are attached to the same piston-rod, so that the air-piston is worked directly by the steam-piston. Suitable valves are provided for admitting and exhausting the steam and air to and from the cylinders.

The pump is operated by steam supplied from the boiler through a pipe, and in this pipe is the compressor governor, which is connected to the main reservoir in such a way that when a certain pressure of air is attained in the reservoir, the governor closes the steam-valve of the compressor. When the air pressure falls, the governor opens the steam-valve and starts the compressor.

The motion of the steam-piston is reversed by a reversing-valve on the cylinder-top head, moved by a rod having a tappet on it which is raised by the reversing valve-plate on the piston striking it. The reversing-valve controls the admission of steam to the main valve, which moves the main slide-valve, which in turn admits steam to or exhausts it from either end of the cylinder.

The steam-cylinder exhaust goes through a pipe to the smoke-box and stack. The air-cylinder takes in air through a perforated metal inlet and through disk or poppet-valves at each end, and discharges it through similar valves to the main reservoir. The air-cylinder is cast with corrugations, or ribs, to give it as large a radiating surface as possible, because the rapid compression of air develops a large amount of heat in it which would be destructive to packing, leathers, and gaskets, and cause the deposit of moisture in parts of the brake-system where it would give trouble by freezing.

The foregoing is a description of the simple air-pump, of which there are a number of different designs, all essentially the same in their operation. In addition, there is the compound compressor, in which the steam and air-cylinders are compounded; that is, it has both high and low-pressure steam and air-cylinders.

Steam from the boiler is admitted into the high-pressure cylinder, and after doing its work it is delivered to the low-pressure cylinder, where it is expanded again before being exhausted to the atmosphere. In the air-end the air compressed by the low-pressure piston is driven through an intermediate air-discharge valve into the high-pressure air-cylinder, where it is acted upon by the high-pressure air-piston, compressing it to main-reservoir pressure and discharging it through the final discharge valves into the main reservoir.

In what is known as the duplex air-pump two steam and two air-cylinders are employed. The air-cylinders are compounded, and their operation is the same as in the compound compressor described above. The steam cylinders are not compounded.

On electric locomotives the pistons of the air-cylinders are gear-driven by an electric motor.

(2) By all means, if you meet the physical and other requirements.

(3) These terms all refer to the various classifications of freight. At stations each agent is provided with a book of instructions covering the use of blanks and reports, and also showing the commodities eligible for movement in manifest or fast-freight trains and the commodities eligible for movement in time-freight trains.

For instance, perishable goods—such as meats, dairy products, *et cetera*—are fast freight; sugar, coffee, rice, or machinery are time freight. As a general rule, manifest freight moves on a schedule of about twenty miles per hour; time freight on a train schedule at about twelve miles per hour. Expedite means to hasten or promote the movement or progress of such freight so labeled.

I HAVE a device for use in Pullman and day-coaches, baggage and express-cars. I know the Pullman Company build their own cars, but don't know about express, baggage, and mail-cars. Would like to get in communication with railroad officials on this subject.

(2) I was told that the Master Mechanics' Association has the power to approve or reject

and turn down new improvements. Kindly give the address of this association.—W. A. S., Los Angeles, California.

(1) All cars are built according to the directions or specifications of the company for which they are being constructed, and hence all specialties or devices must also be so specified. We cannot give you through this department the names of the various railroad officials to whom you might submit your idea, but would suggest that you get in communication with some of the master car-builders or superintendents of motive power in your vicinity.

(2) Your informant has been certainly misinformed. The American Railway Master Mechanics' Association has no such power in so far as the introduction of any new device in American railroad practise is concerned. The object of this association is the advancement of knowledge concerning the principles, construction, repair, and service of the rolling-stock of railroads by discussions in common, the exchange of information, and investigations and reports of the experience of its members, thus promoting the efficiency of the railroad equipment entrusted to their care.

It is true, the association has its standards or recommended practise; but these are not binding on the railroads themselves by any means. Members have the right to submit propositions recommending the adoption of standards in construction or practise, but before they can be submitted to a convention or voted upon they must first receive the approval of the executive committee of the association.

Mr. Joseph W. Taylor, secretary, Karpen Building, Chicago, Illinois, would no doubt supply you any further information you desire. Your first question would indicate that you wish to get in communication with the Master Car-Builders' Association, which operates along the same lines as the Master Mechanics' Association, in which event would advise you that Mr. Taylor is also secretary of this association.

J. C., New York, New York.—There is no official on the Long Island Railroad with the title of master mechanic. Mr. G. D. Bishop is superintendent of motive power and Mr. E. H. Sweeley is general foreman of the locomotive department, both with offices at Richmond Hill, Long Island, New York.

L. W. W., Hopeland, California.—We regret that we are unable to give you the exact number of miles of railroad track using soft-wood ties in the United States and Canada. No reliable data is available; but it is likely that the following will give essentially the information you desire:

Of all the ties purchased in the United States by steam and electric railways in 1910, the different woods were in the following proportions: Oak, 46 per cent; Southern pine, 18 per cent; Douglas fir, 8 per cent; chestnut, 5 per cent; cedar, 5 per cent; cypress, 4 per cent; tamarack, 4 per cent. Figures are the latest we were able to obtain for the United States.

In Canada for the year of 1913 the proportions were as follows for steam and electric roads; Jack-pine, 39 per cent; white cedar, 12 per cent; Douglas fir, 12 per cent; Western larch, 6 per cent; hemlock, 6 per cent; hard pine, 5 per cent; oak, 4 per cent; tamarack, 4 per cent; all others about 10 per cent.

If your question referred to steam-road consumption exclusively, the figures given would be approximately the same.

C. H. S., Philadelphia, Pennsylvania.—As we have repeatedly stated, our readers should place less credence in rumored record-speed runs which generally range from 90 to 150 miles per hour. For instance, we happen to have reliable information in regard to the train that you refer to.

At midnight on December 30 last, a special train consisting of five cars, carrying the Triangle Club of Princeton University, left Minneapolis, Minnesota, and reached Chicago in the early forenoon. The train was operated over the Chicago Great Western Railroad, and the run of 435 miles was made in 9 hours and 54 minutes. This is two hours faster than the best regular passenger schedule between these two points, and is undoubtedly a record, but if the train exceeded 100 miles per hour at any time we do not know of it.

IS the entire system of the Lehigh Valley Railroad equipped with the automatic block system?

(2) Are passenger brakemen usually promoted from the same position in freight service?—G. C., Norfolk, Virginia.

(1) At the close of 1915 the all-passenger lines of this road were block-signaled throughout. 590 miles were equipped with block signals of the automatic type and 642 miles of the non-automatic type.

(2) Yes.

KINDLY inform me how I can forward the equivalent of two dollars to you in payment of a year's subscription to THE RAILROAD MAN'S MAGAZINE.

(2) Can you give me an unbiased opinion of the I. C. S. method of teaching railway accounting?—E. A. H., Black-Hill Rail, Transvaal, South Africa.

(1) At almost any bank or at an express-office you can purchase a draft on New York for this amount, or you can buy a postal money-order from your postmaster in your locality.

(2) We presume that you have reference to a course of the International Correspondence

Schools, and to be frank with you, the writer is not familiar with their course in accountancy. However, he knows well the excellency of their various courses in railroad engineering, for they have instruction cars operating over some of the largest American railroads; and he assumes that the high standards set in these courses are at least approached in the other branches they teach, and hence has no hesitancy in recommending it highly.

IS Chicago, Illinois, the greatest railroad center in the country; and what would be a big place for the South?

(2) How fast do freight-trains go that are carrying perishable goods?

(3) What would you call the Pennsylvania Railroad engines with the cab in the back; also those of the Central Railroad of New Jersey with the cab in the middle?

(4) Do any freight-trains need two firemen?—T. B., Morris Plains, New Jersey.

(1) Yes; Atlanta, Georgia; Birmingham, Alabama.

(2) Fifteen to twenty miles per hour.

(3) You will have to tell us more about these Pennsylvania engines, as nearly all the locomotives of this road have the cab in the rear. On the Central Railroad of New Jersey the engines with the cab over the boiler are nearly all of the Atlantic or 4-4-2 or American or 4-4-0 types.

(4) Yes, quite a number of them.

M. W., Los Angeles, California.—The chief engineer of the Interborough Rapid Transit Company is Mr. George H. Pegram. Mr. H. G. Stott is superintendent of motive power. The superintendent having supervision of the Subway division is Mr. A. L. Merritt. The general offices of the company are at 165 Broadway, New York, New York.

R. B. A., Arcanum, Illinois.—The signal engineers on the roads that you mention are as follows: Illinois Central Railroad, Mr. W. M. Vandersluis, Chicago, Illinois; New York Central, lines east of Buffalo, Mr. W. H. Elliott, Albany, New York—lines west of Buffalo, Mr. F. B. Wiegand, Cleveland, Ohio—electric division, Mr. H. S. Balliett, New York, New York; Baltimore and Ohio Railroad, Mr. F. P. Patenall, Baltimore, Maryland.

IN reading an advertisement of the American Locomotive Company in regard to Pacific type locomotive No. 1131 of the Delaware, Lackawanna and Western Railroad, I note that this engine exerts a tractive force of 47,500 pounds. This engine has 72-inch drivers with only 197,000 pounds on them, cylinders 27 x 28 inches, and 200 pounds pressure.

How does she get that much power? If figures are correct, the engine referred to is quite an advance in locomotive building.

(2) Give an outline of the Santa Fe type, ten in number, ordered for the Erie Railroad last month.—W. M. H., Saxtons River, Vermont.

(1) The figures are quite correct; a tractive power of 47,500 pounds on a Pacific type engine requires an exceptional boiler, which has been provided in the locomotive to which you refer. It is of the extended wagon-top type. At the first course the barrel measures 79½ inches in diameter outside, while the outside diameter of the largest course is 88½ inches. The barrel is fitted with 272 tubes 2 inches in diameter, and 38 flues 5⅜ inches in diameter of 17 feet long.

A combustion chamber 44 inches long is included. The fire-box is 126⅛ inches long by 104¼ inches wide, and includes a brick arch supported on five tubes. All longitudinal seams are dectuple riveted. Tube and flue having heating-surface is 3,311 feet; fire-box heating-surface is 332 square feet; arch tube heating-surface is 57 square feet; giving a total of 3,680 square feet. Superheating surface is 760 square feet, and grate surface is 91.3 square feet.

The general idea that certain types of locomotives had reached the limit of their capacity in power has, during the past year, been repeatedly proved to be a fallacy.

These locomotives of the Lackawanna, of which there are five, are believed to be the most powerful ever constructed of this type. They have been put in service between Scranton and Hoboken. This division crosses the Pocono Mountains, and has a constant ruling grade between Stroudsburg and Pocono Summit of 78 feet to the mile for a distance of 16 miles, with curves of 5 and 6 degrees.

Trains of nine steel cars are being handled over this district on Lackawanna Limited trains No. 3 and No. 6, or a total train-load of 600 tons, at a speed of 30 miles per hour. On other trains these engines are handling from one to two extra cars at schedule time on the grades. Also, all helpers on the mountain district have been dispensed with on trains consisting of ten cars or less.

(2) No data has yet been made public in regard to the engines to which you refer. We believe, however, that they will be of the same general design and dimensions as No. 4000, the W. C. Hayes, delivered to the Erie about this time last year, which has made a remarkable record in heavy freight service. The following are the general dimensions of this type of locomotive:

Gage, 4 feet 8½ inches; cylinders, 31 inches by 32 inches; valves, piston, 16 inches in diameter.

Boiler—Type, conical; diameter, 90 inches; thickness of sheets, ⅞-inch, 29-32-inch, 15-16-inch; working pressure, 200 pounds; fuel, soft coal; staying, radial.

Fire-box—Material, steel; length, 132¼ inches; width, 96 inches; depth, front, 82½ inches; depth, back, 75½ inches; thickness of sheets, sides, ⅜-inch; thickness of sheets, back, ⅜-inch;

thickness of sheets, crown, ⅜-inch; thickness of sheets, tube, ½-inch.

Water-Space—Front, 6 inches; sides, 6 inches; back, 6 inches.

Tubes—Material, steel; diameter, 5½ inches and 2¼ inches; thickness, 5½ inches; No. 9 W. G.; thickness, 2¼ inches; No. 11 W. G.; number, 5½ inches, 48: 2¼ inches, 269; length, 24 feet.

Heating-Surface — Fire-box, 258 square feet; combustion chamber, 63 square feet; tubes, 5,443 square feet; fire-brick tubes, 37 square feet; total, 5,801 square feet; grate area, 88.1 square feet.

Driving-Wheels—Diameter, outside, 63 inches; diameter, center, 56 inches; journals, main, 13 inches by 22 inches; journals, others, 11 inches by 13 inches.

Engine-Truck Wheels — Diameter, front, 34 inches; journals, 6 inches by 12 inches; diameter, back, 42 inches; journals, 9 inches by 14 inches.

Wheel-Base—Driving, 22 feet; rigid, 22 feet; total engine, 41 feet 3 inches; total engine and tender, 77 feet 4½ inches.

Weight—On driving-wheels, 327,250 pounds; on truck, front, 24,450 pounds; on truck, back, 56,000 pounds; total engine, 407,700 pounds; total engine and tender, about 586,300 pounds.

Tender — Wheels, number, 8; diameter, 33 inches; journals, 6 inches by 11 inches; tank-capacity; 10,000 gallons; fuel capacity, 16 tons; service, freight.

Engine equipped with Schmidt superheater. Superheating surface, 1,377 square feet.

L. K., Huron, Ohio.—As we state explicitly at the head of this column, we cannot answer questions in regard to securing employment.

A READER, Boston, Massachusetts. — Our answer to A. S. H., Holyoke, Massachusetts, on page 95 of the January, 1916, issue of THE RAILROAD MAN'S MAGAZINE will give all the information you desire.

J. F. L., Morristown, Indiana.—The *Locomotive Engineering* to which you refer is now known as *Railway and Locomotive Engineering*, published by the Angus Sinclair Company, 114 Liberty Street, New York, New York. As you requested, we have asked them to send you a sample copy of their publication.

D. M., Moline, Illinois.—The Chicago and Alton Railroad operates 1,033 miles, 328 locomotives, 208 passenger-cars, and 14,119 freight and miscellaneous cars. The Toledo, Peoria and Western Railway operates 248 miles, 32 locomotives, 32 passenger-cars, and 2,071 freight and miscellaneous cars. The Toledo, St. Louis and Western Railroad operates 451 miles, 106 locomotives, 39 passenger-cars, and 3,094 freight and miscellaneous cars. The Peoria and Pekin Union Railway operates 16 miles, 34 locomotives, 9 passenger-cars, and 223 freight-cars.

C. E. B., Cayes, Haiti.—The A. C. McClurg Company, 218 South Wabash Avenue, Chicago, Illinois, or Messrs. Baker & Taylor, 254 Fourth Avenue, New York, New York, are two representative large book-concerns. Either of these companies would undertake to supply you any book on the market at the present time.

C. E. H., San Francisco, California.—Address Mr. J. P. Murphy, New York Central Railroad, Box C, Collinwood, Ohio. Mr. Murphy is secretary and treasurer of the Railroad Storekeepers' Association, and will be able to give you the information you wish.

H. F. McM., Guaymas, Mexico. — Assuming that the small locomotives that you refer to are equipped with what is known as the Stephenson valve-gear, the setting of the valves may be proceeded with as follows: Mark the dead centers with the main driver attached to the crosshead. Revolve the driver until the crosshead reaches the end of the stroke.

Mark this point on the guide with a pencil. Then revolve the driver until the crosshead has moved one inch or more, and mark this point. A tram, pointed at both ends, and with the points bent at right angles, should then be used, and with one end fixed on a center punch-mark on the frame or guide-yoke, make a scribe-mark on the tire of the main driver with the other point. Then revolve the driver until the crosshead again reaches the extreme stroke as already marked and returns to the other point made on the guide, and again mark the tire. Then the center between the two marks on the tire will be dead center.

By repeating the operation with both front and back travel of the crosshead, all of the four dead centers may be marked. Then place the reverse lever in the front notch of the quadrant, and revolve the drivers until one of the crank-pins is on the dead center. The position of the valve may then be examined, and it may be stated here that it is good practise to mark the point at which the valve opens on the valve-rod.

This may readily be done sometimes by the use of the same tram as is used in marking the wheel-tires, or by the use of a special tram with one straight, pointed end and one bent end, the straight end to be applied to a center mark on the guide-yoke, or other part of the engine, and the other end marking the valve-rod at the exact two points where the valve closes at the front and back steam-ports. These two points should

be marked with a center punch and the steam-chest lid put in place.

With the valve-rod attached to the rocker and the engine on the dead center, the tram will then show the position of the valve, when a scribe-mark should be made on the valve-rod.

Now supposing there is a variation in the amount of valve-opening as shown by the marks on the valve-rod, it can be seen at a glance in which direction the rocker should be moved to equalize the valve-opening. This can be done by shortening or lengthening the eccentric rod nearest to the link-block half the amount of the variation. After moving the eccentric rod, try the experiment over again, and making new marks on the valve-rod at the dead centers.

Assuming that the marks are equidistant from the valve-opening center punch-marks, and the amount of lead or valve-opening is too much or too little, as the case may be, it may again be readily seen in which direction the rocker with attached valve-rod must be moved to arrive at the desired point.

Assuming that the rocker must be moved forward, then the eccentric to which the rod nearest the link-block is attached must be moved backward on the axle the desired amount, when the experiment of revolving the wheels should be repeated, and the tram reapplied to the valve-rod at both dead centers, and an exact adjustment of the eccentric rod and eccentric completed.

It will thus be seen that the eccentric rod determines the distribution or equalization of the valve-opening, while the position of the eccentric determines the amount of opening. Supposing this to have been on the right forward motion that we have been working, the left forward may be adjusted in the same manner, and by placing the reverse lever in the extreme back notch of the quadrant, the back motions will also be adjusted in a similar manner by the same methods, always taking care that our operations are confined to the eccentric rod and eccentric that is in gear.

It should be borne in mind that after the forward motion may seem to be correctly adjusted, the changes on the eccentric rod and eccentric on the back gear that may be necessary will have the effect of slightly distorting the forward gear, and other readjustments may have to be made in order that an approach to perfection in the adjustment may be accomplished. To this end either parts of the gear should be observed.

The length of the reach-rod should be such that the link-block should have a greater amount of clearance at the top of the link than at the bottom. This is to provide for the wear incidental to service, the tendency of the link being gradually to settle lower on the block.

The length of the valve-rod is also of importance. When the rocker is plumb the valve should be in the exact center of the valve-seat, otherwise an approach to perfection in adjustment is impossible.

This is not all. Assuming that the valve-gear is correct at the full stroke of the valve—that is, with the reverse lever in the extreme ends of the quadrant—it is proper to consider at what point of cut-off the locomotive is presumed to perform its usual work. Suppose, with cylinders 18 inches in length, steam is admitted one-third of the stroke; that is, 6 inches.

Setting the reverse lever so that the valve will close at this point on the right forward motion, it will almost invariably be found that there is a variation at this desired point of cut-off. If the link saddles are fixed in place, there is no remedy other than a slight distortion of the exact adjustment at the full stroke in order to bring the cut-off point as nearly correct as possible; but the mechanic who has sufficient skill to adjust the valve-gear of a locomotive at full stroke will readily learn to make such changes as are necessary to rectify the desired point of cut-off.

Telegraphic and Telephonic

IF there is anything you want to know about the telegraph, telephone, or radio telegraphy—if you have an operating problem that puzzles you—if you want to discuss a question of theory—write the RAILROAD MAN'S MAGAZINE. We have engaged a technical expert who is one of the leading authorities of the country on these subjects. Ask him. He knows!

G. H. H., Denver, Colorado.—The Washington-Boston underground telephone cable is 435 miles in length. Practically all of the circuits in this cable may be fantomed. The fantom as well as the physical circuits are arranged for loading.

In the center of the cable there are fourteen pairs of No. 10 B. & S. gage conductors. Outside of these there are thirty-six pairs of No. 13 gage conductors. In the spaces between the No. 13 gage conductors and the No. 10 gage conductors six pairs of No. 13 gage conductors were inserted. On the outside of the cable eighteen pairs of No. 16 gage conductors are located.

All of the No. 10 and No. 13 gage conductors, except the six circuits between them, are arranged so that they may be fantomed; that is, in "quad" formation. Each quad is built up by taking two twisted pairs and twisting them together, care being taken to provide proper capacity balance. Loading coils are located at intervals of 1.4 miles, all side-circuit and fantom-circuit coils being located at the same points. The side circuits have a mutual capacity of .070 mf. per mile, and the fantom circuits a mutual capacity of .1 mf. per mile.

The most efficient circuits in this cable are the No. 10 fantoms, which have a transmission efficiency equivalent equal to thirteen miles of standard cable. The line is laid in creosoted Southern yellow pine ducts.

CHARLES RICHARDSON, Tilden Junction, Ohio.—The point you raise is one that we cannot very well pass upon. The rules in regard to this matter differ on different railroads. You could get an authoritative opinion covering the rules obtaining on the road on which you are employed by writing the chief despatcher or the division superintendent.

A. L. K., Ardmore, Oklahoma.—The increasing extent to which the telephone is being employed by railroads for the handling of short-haul traffic and in train operation is in many instances creating a necessity for railroad switchboard exchanges to facilitate the interchange of lines. On large systems exchanges have in some cases been installed at terminal points, in shops, freight-houses, ticket-offices, and junction-points. Where the number of telephones connected to a switchboard is large it is necessary to provide an operator for each eight-hour trick. It is probable that in the near future automatic or automanual switchboards will be used for this purpose.

B. W. V., Holyoke, Massachusetts.—Loud-speaking telephones have been installed in the telegraph-offices of certain stations on the Pennsylvania lines. The new device is located in front of the operator or despatcher as he sits at his desk. It is not necessary to hold a receiver to the ear. The voice reproductions in the improved receptor are sufficiently loud to be heard at a distance of two or three feet.

F. J. K., San Francisco, California.—The Southern Pacific Company maintains regularly a telegraph circuit between New York and Houston, Texas, and between Houston and San Francisco. These circuits are operated by the company's own operators. That part of the line between New York and New Orleans (*via* Chicago) is leased from the Western Union Company. The distance between New York and San Francisco is 4,379 miles. The repeaters in this circuit are located at Buffalo, Chicago, Memphis, New Orleans, San Antonio, El Paso, Tucson, and Los Angeles. Between New York and Houston the line is worked duplex, and between Houston and San Francisco quadruplex.

DAVID S., St. Paul, Minnesota.—The humming of telegraph-wires at one time was explained according to the theory that during cold weather or when rapid changes of temperature are taking place the molecular construction of the metal conductor undergoes rapid changes which set up mechanical vibrations which, being communicated to the supporting poles, set them also into sympathetic vibration. Quite recently the theory has been advanced that the vibrations are transmitted from the earth to the poles and in turn to the wires.

Thus, the humming of the wires is a scientific indicator of the weather. If the sound is low, it is said that there will be a decided change in the weather within two days; if the sound is high-pitched, a rapid change in the weather is imminent.

A. M. H., Montreal, Quebec.—The twenty-four-hour system of reckoning time was introduced in Denmark January 1, 1916. This system is used in Sweden, Norway, and several other European countries.

G. H. T., Newark, New Jersey.—The Junior American Guard is a comparatively new organization, being less than a year old. Membership is open to boys between twelve and eighteen years of age. The wireless work of the guard is being directed by Captain C. F. White. One radio company is now organized with headquarters at the armory of the Twenty-Second Regiment, New York City.

S. H. T., Chicago, Illinois.—Wireless telegraph communication was tried out in 1905 on the Chicago and Alton Railroad between Chicago and St. Louis. Sending and receiving equipment was installed on express trains running between these two points, and it is stated by the Alton people that satisfactory communication was maintained up to thirty-five miles from each terminal station.

The system employed was that known as the De Forest. Transmission from Chicago was from a fifteen-kilowatt station, and at East St. Louis from a ten-kilowatt station. Horizontal antennæ wires were strung along the roofs of the cars composing the train, earth connections being made to the trucks.

The Lackawanna Railroad Company made some wireless tests in the year 1909, but the experiments were not at that time carried far

enough to obtain success. In the spring and summer of 1913 the Lackawanna Company erected at Binghamton, Pennsylvania, and at Scranton, Pennsylvania, steel towers providing a total height in each case of 175 feet. Later a 400-foot steel tower was erected at Hoboken, New Jersey, and a similar tower was planned for Buffalo, New York. Ordinarily the Hoboken station is operated from 9 A.M. until 5 P.M. daily, communication being maintained with Binghamton and Buffalo. Hoboken employs a 2,160-meter wave-length, Binghamton 1,800 meters, and Scranton about 2,250 meters.

It is stated that these installations have on several occasions been of great service to the company while regular telegraph communication was interrupted, due to storms wrecking pole-lines.

H. H. K., Bloomington, Illinois.—In using dry cells to operate a learner's key-and-sounder set make sure that the circuit-closer or lever is not left closed when the set is not in use. It would be well to remove the lever entirely so that the circuit could not accidentally be closed. Dry cells lose their strength very quickly on constantly closed circuits. If a 150-ohm sounder is used instead of a 10-ohm sounder, two or three dry cells will operate it for practise purposes two or three months before requiring renewal of cells.

W. R. W., Kansas City, Missouri.—A wireless antenna composed of four ordinary copper wires stretched two feet apart, all wires being fifty-six feet long and supported horizontally at a height of forty feet, will have a wave-length of one hundred and sixty meters.

W. D. C., Salt Lake City, Utah.—Way offices should never "cut in" on through telegraph wires which are being operated as duplex or quadruplex circuits. While the wire is being so operated the signals being transmitted will be unintelligible to you as recorded by your single-line relay. Adding the resistance of your relay to the circuit disturbs the necessary balance of the line for multiplex working.

W. L. C., Ogden, Utah.—The dot-and-dash song you have reference to is probably the following: RX, RC, RY, NC. These letters, if made not too rapidly by means of a Morse key, in singsong fashion resemble somewhat the air of "Pop Goes the Weasel."

D. J. J., Omaha, Nebraska.—The wireless telephone has been employed experimentally in communicating over a distance of 4,900 miles. Any ordinary wireless telegraph receiving outfit may be used to pick up words transmitted from a wireless telephone transmitter, but the transmitting arrangements employed in the two systems are quite different. A wireless telegraph transmitter is operated by means of an ordinary Morse key—necessarily so, as dot-and-dash code-signals are used. In wireless telephony a special type of telephone transmitter takes the place of the Morse key.

For distances exceeding a few miles it is necessary to employ very complicated and expensive apparatus in order to carry on wireless telephone conversation. One serious handicap not yet overcome is that wireless telephone messages may be overheard east, west, north, and south of the transmitting station. This difficulty is serious only from a commercial standpoint, as in some circumstances it may be of great utility to be able to send messages broadcast from a single transmitter. The fact that eavesdropping may take place if but inexpensive receiving instruments are employed for the purpose limits greatly the commercial possibilities of the wireless telephone in its present state of development.

A. M. S., Cincinnati, Ohio.—There are seventeen submarine cables across the Atlantic and two across the Pacific Ocean.

L. V. S., Los Angeles, California.—"Phillips Code" was introduced in the year 1876. The number of word and phrase abbreviations has increased greatly since the book was first issued. This telegraph code is universally used by broker and press operators.

H. B. T., Rock Island, Illinois.—The telegraph school you mention is generally recognized as of high standing. If you attend this school and become a proficient telegrapher you will have no difficulty obtaining a position, provided you have no physical disabilities.

W. R. B., Sault Ste. Marie, Michigan.—Heat-coils in telephone circuits are used in both common-battery and local-battery exchanges, and to some extent at local-battery subscribers' stations. It is not necessary to employ them in common-battery subscribers' stations, owing to the fact that the condenser in the bell circuit prevents the flow of direct current through the ringer windings, the impedance being high enough to prevent the flow of excessive alternating currents.

A. R. M., Birmingham, Alabama.—The "selector" used to ring bells in telegraph-stations is based upon the principle that the short-current impulses of the ordinary Morse signaling-code are so rapid that it is comparatively an easy matter to devise instruments which

will not operate while Morse signals are passing through them, but which will respond if slower and more prolonged impulses are sent through the circuit in which these instruments are connected.

To operate the selector it is necessary that a current lasting steadily for two or three seconds be impressed upon the circuit in code form designed to actuate a given selector. As the combination is formed by the call-box, or ringing-box, the regular Morse sounder in the same circuit shows the selector impulses to resemble a series of long dashes.

D. B. W., Columbus, Ohio.—Ordinary 150-ohm relays may be reduced to 37½ ohms by connecting the coil windings of the relay in multiple instead of in series. When so altered the actual resistance of the relay is 37½ ohms. Where 37½-ohm relays are used it is necessary that all relays connected into the same circuit be of the same resistance.

M. L., Fargo, North Dakota.—"Wireless" testers are used to locate wet spots, grounds, or crosses in aerial and underground cables. They may be used successfully with both lead-covered and loom-covered cables. The tester is connected with the faulty conductors at one end of the cable and sends out a high-toned constant or intermittent signal. A special pair of magnets connected in series with a telephone receiver is then moved along the sheath of the cable until a point is reached where the buzzer tone is no longer heard. This condition indicates the point of trouble.

J. J. H., Prescott, Arizona.—Oilcloth should not be used as a covering for telegraph tables. The trouble you have experienced is due to the fact that the surface of the oilcloth is a partial conductor of electricity. The edge of the oilcloth very likely is in contact with the telegraph-key. When, therefore, the floor has been mopped and is still wet the line current has a path from key to oilcloth, thence through your hand and to ground by way of the wet floor.

LEE EARLL, Notch, Missouri.—Replying to your questions in the order submitted:

1. In wireless telegraphy either a ground connection or a "counterpoise" antenna arrangement is necessary. When radio equipment is installed on moving trains the aerial wire is carried along the roofs of several cars and insulated therefrom. The ground connection is made by soldering a wire to the steel trucks, which are always in contact with the earth by way of the rails.

2. Wireless communication between air-ships has been successful up to distances of a hundred miles or more. In this case the counterpoise "ground" is employed.

3. When receiving-apparatus only is used it is not necessary to use any local battery. The current produced in the aerial wire due to signals transmitted from a distant station is very weak; so much so that it is necessary to use very sensitive telephone receivers to detect its presence.

4. There have been very few cases reported showing that lightning storms have caused damage due to radio-aerial wires conducting lightning discharges into offices or dwelling-houses. It is well, however, to guard against all hazards by connecting up a grounding-switch by means of which the aerial wire may be grounded directly to earth when not in use for radio purposes.

W. L. K., Spokane, Washington.—On a pole-line carrying wires which are being operated as printer circuits or quadruplex circuits it is possible by touching two of these wires at the same time to receive a shock due to a difference of potential of about 600 volts. Where 300-volt potentials are used there are instants constantly recurring when one wire is carrying 300 volts positive, while an adjacent wire is carrying 300 volts negative; touching these two wires simultaneously with the bare hands subjects you to the combined voltage of 600.

A. R. C., Chattanooga, Tennessee.—An ordinary buzzer or vibrating bell may be used as a practise sounder when connected in a series with a sending-key and two cells of dry battery, provided the spring contact of the buzzer or bell is bent so that when the tapper is attracted toward the magnets the spring does not leave its back-stop contact. If a bell is used for the purpose it is best to remove the gong.

HOWARD C., Ottawa, Ontario.—There is a submarine telephone cable across the St. Lawrence River between Prescott, Ontario, and Ogdensburg, New York.

F. G. D., Denver, Colorado.—The Radio League of America was organized in December, 1915. Mr. H. Gernsback, 233 Fulton Street, New York, is manager of the League. Prominent radio engineers identified with the league are: Captain W. H. G. Bullard, U. S. N.; Nikola Tesla, Professor R. A. Fessenden, and Dr. Lee De Forest. All amateurs are eligible to membership.

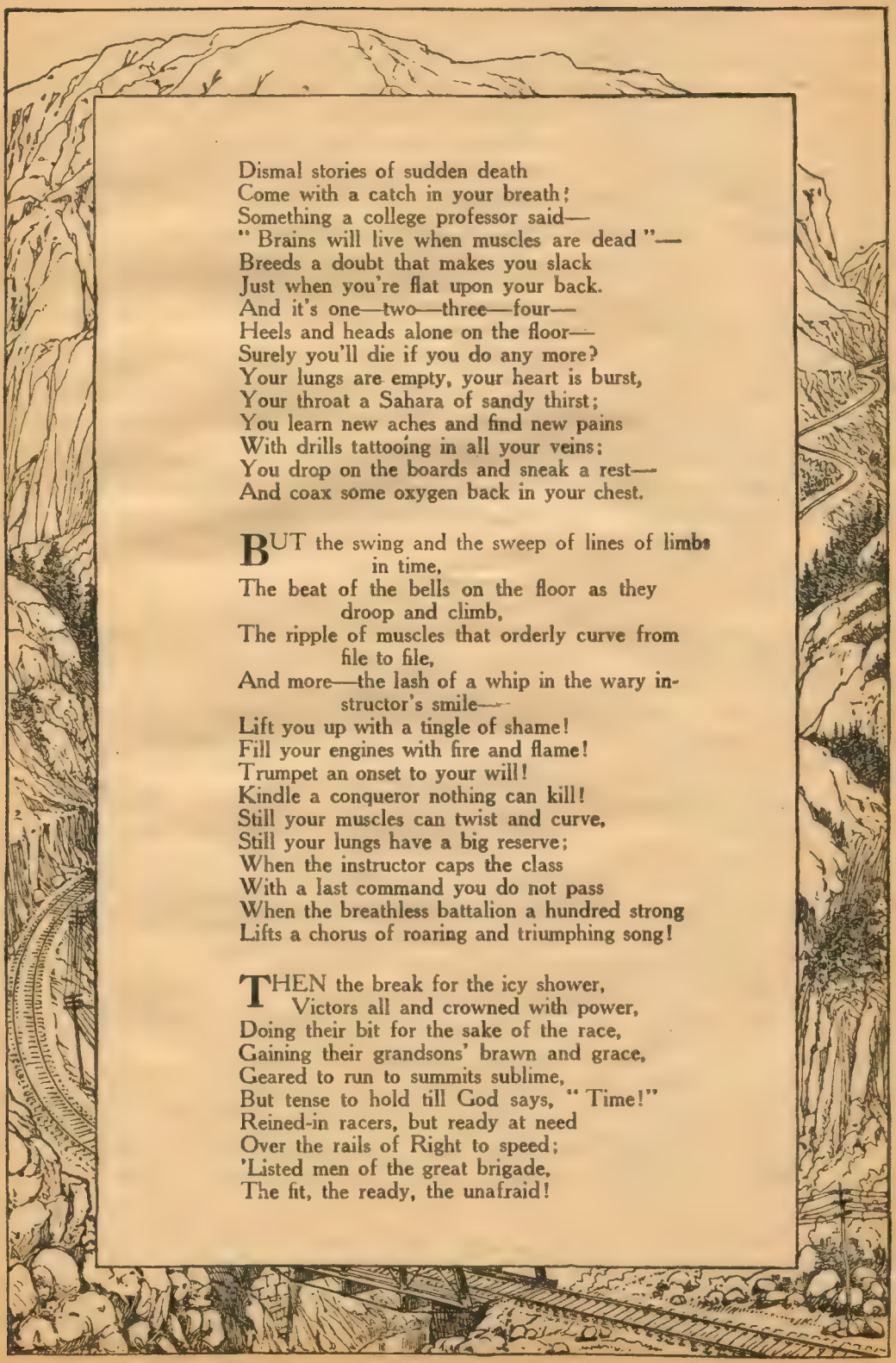
The National Amateur Wireless Association was organized in December, 1915. The association's headquarters is at No. 450 Fourth Avenue, New York City. Prominent radio engineers identified with the association are: Guglielmo Marconi, Prof. A. E. Kennelly, Charles R. Cross, and H. P. Maxim. All amateur radio operators are eligible to membership.

PREPAREDNESS.

BY J. H. GREENE.

ONE—two—three—four
Over your heads and hit the floor!
Bend till your back is about to break,
Punish the pain and fight the ache!
Young and elderly, fat and slim
Gathered in ranks in the airy gym!

OVER a hundred men are here
Following orders curt and clear,
Mastering muscles and making nerves,
Fashioning flesh that bucks and swerves
Till it's the slave of the driving brain;
Seeking the sweat and wanting the pain,
Putting themselves to task and test
The hard instructor's griddling best;
Learning a shame of the loaded waist,
Seeing the crime in the cocktail taste,
Gaining a wisdom none forgets
When the handicapped heart says, "Cigarettes";
Waging a war that is all within
On the ambushed vice and the secret sin;
Scorning the festive fly-by-nights,
The poisoned pleasure of White-Way lights,
The elderly winning a vanished youth,
The younger defiance of age's tooth!

UP on high the instructor stands,
Graceful and Greek from feet to hands,
Easy as rubber and lithe as wire,
A human electron naught can tire.
Five—six—seven—eight!
So he snaps to hustle your gait.
Grip your bells and bite your lips,
Twist your body and crack your hips!
Hit—kick—lift—hop!
You lose a beat and want to stop!
Sloth is whispering back in your brain
Ancient warnings of overstrain;

Dismal stories of sudden death
Come with a catch in your breath;
Something a college professor said—
"Brains will live when muscles are dead"—
Breeds a doubt that makes you slack
Just when you're flat upon your back.
And it's one—two—three—four—
Heels and heads alone on the floor—
Surely you'll die if you do any more?
Your lungs are empty, your heart is burst,
Your throat a Sahara of sandy thirst;
You learn new aches and find new pains
With drills tattooing in all your veins;
You drop on the boards and sneak a rest—
And coax some oxygen back in your chest.

BUT the swing and the sweep of lines of limbs
in time,
The beat of the bells on the floor as they
droop and climb,
The ripple of muscles that orderly curve from
file to file,
And more—the lash of a whip in the wary in-
structor's smile—
Lift you up with a tingle of shame!
Fill your engines with fire and flame!
Trumpet an onset to your will!
Kindle a conqueror nothing can kill!
Still your muscles can twist and curve,
Still your lungs have a big reserve;
When the instructor caps the class
With a last command you do not pass
When the breathless battalion a hundred strong
Lifts a chorus of roaring and triumphing song!

THEN the break for the icy shower,
Victors all and crowned with power,
Doing their bit for the sake of the race,
Gaining their grandsons' brawn and grace,
Geared to run to summits sublime,
But tense to hold till God says, "Time!"
Reined-in racers, but ready at need
Over the rails of Right to speed;
'Listed men of the great brigade,
The fit, the ready, the unafraid!

BOOTLEGGING BOOZE BY RAIL.

Weird and Various Are the Subterfuges by Which Whisky Dealers Try to Get the Railroad to Carry Their Illicit Wares into Arid Oklahoma.

NO RAILROADER EVER MIXED UP IN IT.

Company's Detectives Have Found Carloads of Chat That Contained Whisky by the Barrel, Oil-Line Pipe Filled with Red-Eye, Bottles of the Hard Stuff Hanging from Truss-Rods, and "Books" That Leaked—The Affecting Tale of Indian John's 11 Sick Children.

BY GEORGE GOOD.

HETHER the law which caused this contraband and incidentally this article is good, bad or indifferent is a question for others to ascertain. But the queer violations thereof and the consequent results may be interesting.

The State of Oklahoma is what is called in political parlance, "dry." That is, no intoxicating liquors are allowed to be shipped into the State. The railroads and their employees do what they can to obey the law, but, as the following few incidents will show, do not always succeed.

A car of chat was shipped from one of the zinc-mines near a Missouri city in which the festive cocktail and the frothy beer flourishes, to an Oklahoma town, freight C. O. D. Chat is a by-product of the zinc-mines and is used throughout the Southwest for the purpose of constructing sidewalks, roads and depot platforms. Cars of it are shipped every day and no one thought anything of it until this car reached its destination. The engine of the local crew "kicked" it on a spur and promptly forgot all about it.

Several days passed. The agent at the receiving point carried the car and its contents on the "O. H." (on-hand book). No one came to pay the freight or claim it. Going home one afternoon, the agent passed the car and climbed up its side to look into it. The car was a common gondola, which otherwise would have been used for transporting coal.

Instead of the surface of the carload of chat being smooth on top, as any car of the stuff should be after traveling one hundred and fifty miles, there were large holes, reaching to the bottom of the car, in several places. The holes were about the size of a barrel. Then the agent remembered that there had been a large number of "drunks" in the police court of the town during the past few days.

"Bootleggers, b'Gosh!"

"Bootleggers!" was the agent's only comment, as he went back to the depot and reported the facts to his superior officers and then to the resident United States deputy marshal. "Bootlegger" is a name given to illicit dealers in whisky in the Southwest, as in the olden days these individuals were said to wear hip-boots in which they carried their stock. When a man gave the thirsty high-sign the bootlegger pulled a glass from

his vest-pocket and a flask from his boot and sold the thirsty man all he wanted or could pay for.

The car of chat was never claimed, the whisky-dealers having removed their stock at night while the agent and most of the people of the little city were asleep. But now, when a carload of chat is shipped into Oklahoma, it is shipped prepaid, and officers who wear badges of United States deputy marshals prod through the contents with long, sharp iron rods made especially for the purpose.

A FREIGHT CONDUCTOR on the "Katy," south-bound, was climbing over his train just after leaving the State line separating Kansas and Oklahoma. He crossed a car loaded with oil-line pipe and met his "swing" brakeman. An odor of the stuff that causes one to see little pink giraffes and makes Peoria, Illinois, the largest purchaser of whisky barrels in the world, instantly assailed his nostrils.

"You've been drinking," he said to the brakeman. "Haven't you read Rule G, and don't you know that if I let you work on this train I'll get fired?"

"Drinking nothing!" asserted the brakeman. "I drink nothing stronger than coffee. I'm one of the original teetotalers from Teetotalersville."

"Well, then, when we get to the next telegraph office I want you to come in with me and let the operator smell your breath. If it smells of booze I'm going to turn you in. I can't afford to lose my job for carrying a brakeman who is under the influence of whisky. I'd smell your breath myself, but I've got a cold and can't use my sense of smell."

At the next telegraph office the conductor and his brakeman went into the telegraph office.

"Smell his breath!" demanded the conductor, pointing to the brakeman.

"Whe-e-e-w!" ejaculated the operator. "He's been eating onions! What kind of a joke is this?"

"Smell no whisky?" asked the conductor.

"Not a smell," asserted the operator.

Aha! That Telltale Drip-Drip!

Back along the train the brakeman and conductor walked. Just at the point where the car of oil-pipe stood the scent of whisky permeated the air. They stood and listened. A steady drip-drip of some fluid was plainly heard.

Calling the operator and the engineer, they investigated. The oil pipes proved to be full of whisky. One of them was leaking, hence the cause of the smell that nearly lost the brakeman his job. The presence of the fluid in the pipes had not been noticed before, as it is the custom of shippers of that class of pipe to plug the ends with wood so as not to damage the threads.

Upon orders from the train despatcher the car was set out and a deputy U. S. Marshal called to watch it.

"IN the summer, when the tramps go North again," as the old song has it, a hobo camp of great dimensions is maintained at an important junction of a train line with its main branch, just below the State line of Oklahoma and Missouri. The police officers of the town visit it regularly, but beyond that rarely molest the travelers.

One night a railroad detective and a city officer made their regular visit to the camp, only to find every one there drunk.

"Some fellow must have come from Kansas City or St. Louis with a quart," remarked the detective. "They'll sleep it off before morning."

"Booze Is Where You Find It."

The next night the occupants of the camp, with the usual additions during the day, were in a condition which might be referred to as hilarious. No amount of questioning would wring from any of the hoboes the source of their supply of the intoxicant. The railroad detective decided to watch.

The following night he was at the depot when the Kansas City through train pulled in. As it stopped he noticed a notorious bootlegger leap from a forward coach and walk hurriedly back to the Pullman cars. He seemed to be looking for something on the truss-rods of the rear cars.

From the rear of the train came a couple of hoboes. Their actions were similar to those of the bootlegger. Both the bootlegger and the hoboes reached what they were looking for at the same moment. There ensued a battle royal. When the detective reached the spot the three were giving a good imitation of the bouts staged occasionally at Madison Square Garden. And hanging from the truss-rods was a

package, which the detective secured. It contained a dozen quarts of the forbidden fluid.

The detective made no effort to stop the fight. When the train pulled out it left a notorious whisky-peddler slugging with the two hoboes. The hoboes won the day—or night.

The parties separated just in time to watch the detective break the bottles against the rails of the track.

The bootlegger, whose headquarters were farther down the line, had a partner in a Missouri town who attached the package to the rods of the Pullman cars when the train was standing at that city. In some manner the hoboes had found the first package and confiscated it, and kept on confiscating the daily package until the whisky man followed the train down to find out where his means of livelihood was going.

The two hoboes ate supper that night with the railroad detective. For they had beat up the outlaw and saved the railroad from a possible fine for transporting intoxicating liquor illegally.

A BOX of books, consigned to a prominent man in an oil city of Oklahoma, arrived at the receiving-depot. The box was emphatically "bad order," or rather, "bad odor."

"You'd better come at once and get that box of books consigned to you from Fort Smith," cautioned the agent over the telephone wire. "They are leaking."

The "Books" Were in Bad Odor.

The p. m. took the hint, came down in his car and secured the "books." An odor resembling that of a distillery came from the box and a tiny little brown stream trickled down to the platform as the owner carried it to the car.

"Don't ship any more books through this office that are apt to spring a leak," said the agent. "You know the law."

The gentleman took the second hint.

THREE coffins were consigned to a man at a small station on the Frisco in eastern Oklahoma. As the local crew unloaded them the conductor, checking the bills, remarked to the agent, who stood near:

"Bad luck seems to hit a man all of a sudden. This poor fellow must have lost at least three of his family. I sure feel sorry for him; having to send for three coffins at once."

The agent looked at the name of the consignee.

"That man has no family and has been arrested a dozen times for illegal liquor-selling," said the agent. "Tell the brakemen to accidentally drop one of those things."

Pop! Goes the Coffin.

The last one unloaded "accidentally" hit the bricks of the platform with a thud. A popping sound was heard inside. Then an officer was called who opened the other two and they were found to be full of bottled beer. When the consignee drove in for his coffins an hour later he found a deputy United States marshal in charge. The railroad company was not held liable either for the breaking of one of the coffins or for transporting the contents.

THE writer spent some time as night operator at a little station on a railroad in the Cherokee country of Oklahoma. The town was small, everybody went to sleep with the chickens, the trains were few and far between, and therefore the nights seemed long. One night an Indian came into the open waiting-room and for companionship more than anything else was smilingly invited to come into the telegraph office.

"You gottum box for John Jones?" he asked.

I did not know, as the O. H. book was in the safe and I didn't deliver express after six o'clock.

"You gettum; med'cine; my little babe very sick; goin' die if not get box."

I felt so sorry for the aborigine that I looked through the express storage room until I found the box. He took it and left. The box was prepaid.

The next night he came again, and again, until I got so accustomed to his nightly calls that I hunted the box before darkness came on. Once he tipped me with a fifty-cent piece, saying as he did so:

"You keepum; you good man; day agent, him skunk."

I think it was the fourth night when I came down to work that I found the agent

in consultation with a man whom I did not know.

"Where are those 'John Jones' packages?" the agent demanded, as soon as I came in.

"I've delivered them each night to the Indian," I replied. "Wasn't that what any one would do, when a man's child is dying? Humanity would counsel it even if the express company would not."

"Not by a jugful!" exclaimed the agent. "They were sent here as a 'plant.'"

"Don't you know you're laying the railroad company liable for transporting intoxicating liquor, if not for selling it to Indians?" asked the stranger.

"No, I didn't, my dear sir," I said with some heat. "Who are you? Not an official of the railroad, for I know all of them."

He threw back the lapel of his coat, showing the little gold badge of the secret-service officer. I begged his pardon.

"That's all right," he said. "We'll wait for 'John Jones' to-night."

We waited. About midnight the Indian came. I let him enter the telegraph office, while the secret-service man hid under a table.

"I'm too tired to get the box to-night, John," I said in answer to his usual question. "How many children have you?"

Had Eleven Ill Little Ones.

"Gottum 'leven."

"All sick?"

"All very sick. Little babe him got measles. Boy him got smallpox. Next him got fever. Next him got chills. Next him got—"

At that moment the secret-service officer crawled from under the table.

"John," he said, "I'm afraid you'll have to let the children get along by themselves while you work a few years for Uncle Sam at Leavenworth. Come on!"

The Indian proved to be a bachelor, but he sure knew how to work on my sympathies all the same.

ONE afternoon, as the engineer of a west-bound passenger-train was oiling around preparatory to leaving a border city for the other terminus of his run in Oklahoma, a youngster approached the engine and handing him a package, said hesitantly:

"My papa works in the shops at X (naming the city at the other end of the division). Would you be so kind as to take this package to him? Mamma is sending him some things."

"Sure," said the kind-hearted engineer. He took the package from the boy and placed it in his seat-box.

When the engine was taking coal at the other end of the division that night and the engineer was washing up, a man climbed into the cab and asked the engineer if he had a package for him—a machinist employed in the shops there.

"Here it is," said the engineer, handing the man the package left in his care by the boy at the other end of the division.

Why "Papa" Didn't Get His Parcel.

This occurred every alternate day for a week or more. One day the engine was derailed at an intermediate station and the engineer, looking for something in his seat-box, tossed the child's package to one side. When he picked it up again it was leaking and the smell of whisky was permeating the cab.

While no one was watching the engineer threw it into a barrow-pit, knowing that the smell would be hard to account for if an official happened to board the engine. That night, on the arrival of the train at the terminus, when the man climbed into the cab for his package he was met by a "44" in the hands of a deputy United States marshal to whom the engineer had recounted the facts of the case. It was proved that the man had never been employed in the shops at all.

A NIGHT switching-crew in an Oklahoma city was telling stories in the switch-shanty one night when business was quiet. A man who looked like a farmer came in and asked for the yardmaster.

"I've got a car of cottonseed down here on the house-track," he explained. "Would you mind pulling it out to that spur just beyond the Katy crossing? I want to unload it early to-morrow morning so that I can feed some cattle there. They have been without food since this morning."

Always ready to oblige a patron of the road, the yardmaster sent a couple of men with an engine and "spotted" the car for the man. He had a bill of lading. The spur indicated was beyond the limits of

the city, at a lonely place among some hills.

The next morning the crew found to their dismay that they had spotted the car for one of the more or less notorious bootleggers and that the car contained intoxicating liquor. The crew was arrested, but proved to the satisfaction of the United States commissioner that they had acted innocently. They were released.

A man who asks that crew to move a car for him at night now will meet with a decided refusal.

A RAILROAD detective had received notice that a shipment of liquor was coming on a certain train, and to watch out for it. He looked over the train as it left the "wet" city and spotted a couple of men he thought looked like illicit dealers. He decided to arrest them when they reached their destination.

The Old Farmer's Tale of Wo.

A farmer in a seat ahead of him was worried. He turned to the detective and asked him if he knew how to get his trunk off at a station a few miles short of his destination. His daughter lived near there, he explained; she was ill and he wished to see her as soon as he could. By going to his ticket destination he would have to travel back by wagon. The place he wanted to leave the train at had no agent.

"I'll fix that for you," said the detective, anxious to please the old man and make a friend for the road.

He stopped the conductor as he passed and told him the circumstances. The conductor offered to stop the train and put the trunk off. The detective helped unload the trunk, which was very heavy. Then, when he got to the city a few miles further on, he questioned the two he had thought were bootleggers and found them to be schoolteachers coming to attend a teachers' convention.

Late that night a bootlegger was brought in from the country. The detective went to the jail to look at him. He proved to be the old man he had accommodated that morning. They "kid" that detective to-day about how he helped a bootlegger get away with his whisky.

IT is an enviable record to be able to say that no railroad man has ever been convicted of either "introducing" or disposing of whisky in Oklahoma. It is against the law to do so, and railroad men, as a rule, obey the laws of the country they work in.

Paul Steele asks:

From The Railroad Man's Magazine

Who rips your zeal and work to tatters?
Who is so small, yet weighs a ton?
He is the imp who chitter-chatters,
"Can't be done!"

He is the imp of "Nothing matters";
He wins the fight *you* might have won—
So clench your brawny fist that batters
And *soak* him, son!

A LONG LETTER FROM TAKE-A-CHANCE SIMPSON.

BY HORACE H. HERR,

Author of "On the Trouble Special," "On Short Time," "Tracer 1313," "The Carbon Copy," the "Running by the Red Lights" Series, etc.

A COMPLETE RAILROAD NOVEL.

PART I.

THE FEMALE MAYOR OF MOQUI.

MISTER EDITOR, ESQUIRE: Yesterday, a week, I drifted into Holbrook to help Brer Williams prod a bunch of horseflesh into a stock-car. Seems like two of them big tarantulas what jerk the trains over these rails got into an argument over Hardy way and afore they decided which one was a going to turn out for the other'n, they'd mussed up the country considerable, including Brer's stock-car what was on the head end.

Me not having the price of a stack of white chips and with a few hours on my hands, I dropped into the *Argos* office and was surprised to learn that literature is a money-making business. So here goes.

'Course there's the chance that the editor was a stringing me, but he 'lowed as how some of these writer chaps got as much for one yarn as I get in a month for wrangling these uncivilized, yaller horses.

Mr. Editor, I can't write none of this imagination stuff, but I sure can tell you how the bull eat the cabbage, without any fancy trimmin's, so just ship me what this dope's worth to you and here's your literature on the female mayor of Moqui.

Don't get the idea that just because I've been spending most of my life perched up on the summit of a half-witted bronco I know nothing about railroading and building literature. I was riding pony express in Arizona afore the old Atlantic and Pacific was built, afore any of these Indians here had got the pants of civilization; and I know as much about the Arizona North and South as its own parents, for I've seen it grow from a colt, so to speak.

I don't expect you to believe that I'm a real railroad man until I prove it to you, Mr. Editor. What's air? No tenderfoot

knows what air is. Air is something that they examine firemen on afore they boost them on to the engineer's side of the cab; air is what the engineer uses to break the train in two; and a time-card, Mr. Editor, you know you've got to be a railroad man to know what a time-card is. A time-card is a piece of paper with printing on it to make you think there's a town every once in a while where they ain't anything but a water-tank or a side-track.

Now Moqui is on the time-card and even to-day it's the last spot on earth where you'd go a hunting for a female mayor or any kind of an animal what takes naturally to a highly cultivated and well-populated range.

In the first place, if there ever was a spear of grass within fifty miles of Moqui it was never found by the Navaho Indians' goats; and a Navaho goat, Mr. Editor, can see grass as far away as a bank president can see a dividend. In the next place, if as many as one persons would arrive in Moqui in the same crowd, the hotel would be so packed that the company would have to sleep in the back yard.

I saw Moqui the first day it oozed on to the Arizona landscape. You couldn't be sure then whether it was a pimple or just a freckle or incipient erysipelas. It had a red complexion and looked as if it would have been an act of kindness to shoot it and the next time I saw it it hadn't changed a bit, but it was the grandest sight I ever saw, being presided over by the greatest female mayor Arizona ever had.

That was about six months before me and the Big Fellow and Marcus Marmion Matthews were prospecting for railroad property and found seven feet of snow, a snowslide and a broken leg. Marcus Marmion Matthews found the broken leg.

I want to interrupt the story a minute, Mr. Editor, afore you get a wrong idea. Marcus Marmion Matthews is some name, don't you think? It don't sound like literature, and it's an awful brand to put on a human being. If I had a sheep-stealing dog that's what I'd call him.

Marcus Marmion Matthews don't make a noise like a railroad either, and before you waste any more type printing it I want to give you my word of honor as a gentleman and a author, that Marcus Marmion Matthews wasn't what he sounds like. The first time I heard it I wondered how it would listen on a melodeon, but I don't want you to make no mistake about it so I'm a giving you fair warning.

Two years afore the first Arizona North and South train snaked its way through the Frisco mountains into Ash Fork, Arizona, I was a-sitting in the shade of Matta's adobe emporium in Señora Town. Señora Town is right across the railroad tracks from Winslow, and Winslow is more or less in the center of a dry climate known as the Painted Desert.

The night before I had invested my quarterly pay in a new faro system that couldn't lose, and after borrowing supper-money I dropped in on Matta, it being too chilly to sleep in Creswell's corral with the horses.

As I said afore, I was sitting in the shade of the adobe, that being the side out of the wind, when I happened to look toward Winslow and saw the long and short of it coming across the track. The two of them didn't belong to our range, I was sure; and I quit figuring how much money I would have made if I'd played the low card to win on the last deal, long enough to size them up.

The Big Fellow had the size for an Apache, but he was too light-colored and wore too many clothes. The Little Fellow might have been a Moqui medicine man if he had just worn feathers. He wore a cute little cap with a long porch sticking out in front to shade his mustache, which seemed to be a tender, sickly little thing; a gray coat with little fussy strips running up and down it ever so often and a nice little cloth belt chasing itself about his waist; he wore —well, Matta has been justice of the peace in Señora for about twenty years, and he says the law ain't provided no name for them, so you can't expect me to know just what to call them.

You couldn't call them chaps, and they lacked a whole lot of being pants. Panties is the best I can do, Mr. Editor, for they didn't come below his knees and they bulged out at the sides and they had fancy stripes running both ways of the goods. His boots were a pair of shiny shoes with yellow leggins coming down to them, and he carried a cane, though I couldn't see that he limped any.

I took three guesses and give up, for a fellow can't always be sure what Nature had in mind when she was building. But the Big Fellow, you didn't need more than one guess with him. He wore a big sombrero, his face was brown and the muscles

over his jaws stuck out same as they do on a cow-pony's rump after a hard round-up season.

The Big Fellow stepped out as if he knew where he was going, putting his feet down sure-like, same as a Spanish mule under a heavy pack. He was broad across the chest, with shoulders that seemed to be trying to burst through his coat. Wasn't nothing fancy about him; he didn't have a necktie and his boots were real ones without any phony tops. He looked so much like the real article I began to wonder what county he was sheriff of.

By the time they arrived at Matta's I had my alibi all made up, though the closer the Big Fellow came the surer I was that it wasn't no use to try to stall him. The Little Fellow was doing the talking as they came up.

"I rather expect him to be a rough person with a vulgar, drooping mustache," he was saying in a voice like a canary bird's; "carries a butcher-knife possibly, and a revolver. I shall be dreadfully nervous."

The Big Fellow laughed. His laugh had something to it; sounded like a string of stock-cars going over a switch-point.

"But there's one good thing about these fellows," he said. "They always come around the day before they intend to shoot you and tell you about it."

The one in the striped dress made a noise like a steer pulling his foot out of the mud.

"How dreadful!" he moaned. "The impudence of them, to tell a person a day in advance and let them worry about it all that time!"

The Big Fellow laughed again. They were just at the door of the adobe when they spotted me. Instead of going in the Big Fellow stepped my way, with the other one standing back ready to stampede if given half a chance.

"Howdy," says the Big Fellow. "Do you happen to know John Simpson?"

"Well, maybe I do," I answered civil-like, but cautious. "What's he been a doing now?"

"They call him 'Take-a-Chance' Simpson, and he was in town last night," continued the Big Fellow.

"But what's he done now?" I insisted. "What county be you the sheriff of?"

The Big Fellow laughed again. It was a catching kind of disease, and afore I realized it I was a grinning, too.

"I'm not in politics," he says. "I'm building railroads. As for Simpson, he hasn't done anything very serious that I know, but I want to see him."

"Well, you don't need no specks. Just go ahead and shoot."

For some reason the Little Fellow ducked behind the corner of the adobe, but the Big Fellow stuck out his mitt.

"My name's Foster—Jim Foster. I'm looking for a man who can keep his mouth shut and who knows the country between Winslow and Ash Forks. I want some one who isn't afraid of the weather and who doesn't have to have a feather bed every night."

"Well, Mr. Foster," I said, determined to see what his game was, "I've stuck my face into every water-hole on the northern Arizona range, and I always breathe with my nose. I stayed in out of the weather two months once; but it wasn't my fault, for I wasn't the fellow they wanted, and I proved it. As for feather beds, you don't mean to insinuate that I'm used to sleeping in a henhouse or a bird's nest, do you?"

Foster tried to make me believe that some people have feathers on their bed, and I just let him rave. I say, Mr. Editor, a bed would be a fine-looking animal with feathers, and why he thought I'd stand for a herd of talk like that is more than I can understand.

He finally got down to the place where he asked me if I had anything to do for a few weeks. I told him I had a standing date to wrestle a bunch of wayward horses over on the Sunset Range, but I wasn't exactly married to the job.

"Would you hire out as guide and all-around man for me for five or six weeks, furnish the saddle-horses and pack-mules and watch the grub-sack for fifty dollars a week?"

Mr. Editor, I don't know how familiar you are with finances. Fifty dollars a week may sound like a lot of money to you and then again it may listen like a fish story; but I'll use a burro for a saddle-horse the rest of my life if that wasn't just what he said.

"Just lead me to the money," I says, for if a fellow offered me fifty dollars a week to wrangle polar bears at the North Pole I'd take a chance.

We got down to business mighty quick after that. Seems Foster thought it was the open season for railroad right-of-ways, and he was going up in the Frisco moun-

tains on a still-hunt. After getting a line on his plans I knew that we would never be two weeks away from a grub-house, and I didn't have to go in very deep for bacon and beans.

He had a kind of telescope on three legs and some other junk, including a chain that was long enough to picket out a saddle-horse where the grass was short; and this with the tent and bedding was about all the freight; and any time I can't stick that much on to a Spanish mule with a diamond hitch I'm ready to take a job sheep-shearing.

I borrowed two horses and outfits from Brer Williams, went down to Creswell's corral, coaxed that old family nag of mine into a corner, threw the saddle at her and climbed on. Pap O'Connor was perfectly willing to make a few dollars without working, so I rented one of his pack mules; and it wasn't more than two hours after Foster made that money talk over in front of Matta's when I was waiting on the company to start the train for the hills.

I'd been so busy a figuring out what fifty pesos would buy that I'd forgotten about the animated peanut that was with Foster over at Matta's. There wasn't no chance to overlook him when he came out to embark on that flea-bit roan of Brer's. He had another suit of clothes, just like the first one except the colors run the other way; and I couldn't help but think it was a shame that the rest of the bunch wasn't in town to see the fun.

You understand, Mr. Editor, Winslow then wasn't the same as Winslow now. You couldn't jump out on short notice and buy a hobby horse. You had to take what you could get in the way of horseflesh, and Brer's flea-bit roan wasn't just exactly a Sunday-school product.

When he was a standing with his head down, waiting for the victim, you felt like ordering him a soft-boiled egg and a glass of milk; about four seconds after you got on him you wondered why you didn't hand him a strychnin sandwich. He was gentle in a way—eat grass out of your hand. But he wouldn't let it go at that; when you got on him he wanted to eat the pants off your legs.

Well, Foster and the Little Fellow came out of Tom Hesser's hostelry dressed for cold weather. It was then that I was officially introduced to Marcus Marmion Matthews; and during the performance I couldn't help but think what that flea-bit roan was a going to do to that name when it got in the saddle. If some real sporty person would have offered to bet he could recognize it after the roan got through I'd taken a chance with my first week's fortune.

"That critter's a bit rough for a second or so after you get on," I explained to Mr. Matthews, not caring to have him go unwarned. "He ain't been rode since yesterday morning."

"Reminds me of the skates that pull the street-cars around the Battery in N'wark City," replied Matthews; and me, knowing that they don't have horse-cars in New York City, I told him to quit kidding me that a way.

Foster swung on to the big bay, and I waited for Matthews to climb up, feeling that I'd better stay on the ground so as to catch him if the horse wasn't where he thought he was when he sit down. Then I see him take a hold close up to the bit, and afore I was sure that he was really going to get on he was in the saddle.

I wasn't no more surprised than the roan, but I didn't jump near as far. Of all the sun-fishing, pitching, snaking movements that roan knew or had ever heard of, he tried them right there; and this Matthews person riding like a soldier in a picture book; and if he pulled leather I swear I didn't see it.

Mr. Editor, I was the first man to ride that roan horse of Brer's, and for a month afterwards I didn't ride nothing else; not that I was that stuck on the brute, for I wasn't—rather I didn't. I lit on my head and shoulder, and if it had been just a little more on the shoulder I'd been through riding horses for good, but being more on my head that way, I was able to be about again in a month. And then this—this—well, this pantie person comes along and gets on the apex of that roan and rides away like a brakeman sittin' on the top of the cupola!

Foster didn't seem to be surprised.

"How do you like it?" he asked just as the roan switched ends.

"Like riding in the subway," piped Matthews; and as that didn't mean anything to me I let Foster do the laughing while I tried to keep my old family nag from following after a bad example.

Foster and Matthews were a quarter of a mile down the road by the time I caught up with them, having the pack-mule to

herd; but as I came up Matthews looked at me kinda pained like and says:

"Mr. Simpson," he says, "some day when you have time and inclination, old fellow, would you do me the favor of getting a real devilish horse for me to ride. I just must have some exercise, I'm getting so corpulent."

All this is handed you, Mr. Editor, as a part of Matthews's pedigree, for I didn't want you to feel that you were putting something in your paper what didn't have anything on him but unnatural clothes as a recommendation.

Foster wanted to ride by Moqui and leave some instructions with the operator there, and as it was six miles off the trail which we had to follow to get across Cañon Diablo without jumping over the big crack in the ground, I suggested that it would be just as well, seeing as how the pack-mule wasn't as fast as a passenger-train, for me to pilot the brute along the main trail while Foster and Matthews rode over to Moqui, coming on by way of Tucker's Flat, which would let them catch me just beyond the Hole in the Ground.

As I said afore, Moqui wasn't very much; in fact, it was less than that. It had one interesting sight that you don't see every day, and that was a box-car without wheels and no track to run it on. Moqui was about ten miles west of Winslow, and in those days no railroad had ventured that far. There was a telegraph-line into Moqui, and parts of the year the Arizona North and South kept an operator there to entertain the stockmen who would come that far to file their orders for cars.

Of course, an operator has to have some kind of a shed, so a small box-car, minus the running machinery, had been hauled out from Winslow and gently deposited in the middle of a grove of red boulders; and after a sandstorm or two had tickled it under the chin, from a mile away I swear you couldn't tell which was boulder and which box-car.

The first two seasons after the place was opened to the public days and closed to the coyotes nights, no one paid much attention to the station; but the summer before that day I met Jim Foster business picked up powerfully.

That telegraph-wire from Moqui to Winslow was growing fat and lazy from lack of work until Steve Crandall, a stockman I was working for then, dropped in one day to see if it would be convenient for the railroad to spot a stock-car for him, meaning, of course, for his horses, early the next week.

Steve was awful busy that day—couldn't spare the time to go to Winslow and place the order himself and buy the makings of some more sourdough for the outfit—so he left Cañon Diablo early in the morning; and by all the laws of gravity and horseflesh he should have been back again by ten o'clock. He got back at ten o'clock all right, but it was the ten o'clock following the ten o'clock he had figured on; and he seemed as excited as a range gelding what's smelled of a saddle the first time.

The locoed part of it all was that Steve had to ride back to Moqui the next morning to order that same stock-car. Steve don't take twenty-mile rides for his health, and he isn't the man to make a trip like that and forget what he went for. The whole outfit was speculating on what kind of an ailment had grabbed him until late the second afternoon, when one of Campbell's sheep-herders wandered into camp and announced that Steve had taken unto himself a squaw.

Knowing that sheep-herders get off their head once in a while, we didn't take much stock in the story until Steve come riding in after dark again and announced that he'd have to go to Moqui the next morning to order a stock-car.

That made three trips after that stock-car. I knew that what Steve needed wasn't a stock-car but a coach with plush walls and a doctor to watch him; so when he started out the next morning I excused myself an hour later and wandered off Moqui way to see what I could see.

When I got over to the ridge and looked down on Moqui there seemed to be some kind of a celebration going on. There was a string of flags from the box-car to the first telegraph-pole, and I could see some one working about the place. Knowing that operators never work, I thought there must be something wrong, so I leaves the cayuse behind a cluster of sand and starts down to the box-car to see what's up, keeping on the blind side.

I got down to the place where I could see that what was fluttering in the Arizona breeze wasn't flags, but a regular washing; fact is I got down to the rear of the box-car and was coming around the corner to com-

plete the investigation when I met Steve traveling from the other side, carrying a large tub half-filled with water.

You never saw Steve carrying a tub, did you, Mr. Editor? You wouldn't be no more surprised than I was. Fact is, Steve seemed to be pretty much surprised himself, enough at any rate to make him let go the handles, the tub coming to rest with a metallic splash on the Arizona sand and one of Steve's feet.

Steve let out a yell and grabbed his toe; and just then I got my first glimpse of the Female Mayor of Moqui, who came rushing from the car to see what had happened.

We didn't pay much attention to what Steve was saying. I just looked at her and she looked at me and Steve monopolized the conversation.

When you saw her standing there in the midst of the Arizona sand-hills she looked like a mighty little person with a face like a Utah village. I don't suppose that means much to you, Mr. Editor; but if you'd ever traveled the northern Arizona range for a month, trailing a bunch of wild ones until they took down into the sand country and the brown hills, riding and riding and riding, seeing nothing but sand, red ants and lizards, hearing nothing but the thud of your horse's feet and the bum singing of the coyotes, eating nothing much but alkali dust and all that sort of stuff—I say if you been against that game for a month or so and some hot afternoon you come over a ridge and there in the draw is a spot of green, with real grass, real trees, real water shining in the irrigation ditches, you'd understand just exactly what I mean when I say that that young woman's face looked like a Utah village.

"I do hope you haven't hurt your foot, Mr. Crandall," she said afore she even admitted that I was on earth.

"Hurt!" exclaimed Steve, putting down his foot quickly and picking up the tub again. "I should say not! Tickled me so I could hardly stand it for a minute!"

And I was glad he said it that way, for if he'd even insinuated that anything about that place could have hurt any one I'd have had to argue the question with him; and it's always bad business to argue with the boss, especially when Steve is it.

When she felt sure that Steve wasn't going to be sent to the hospital she turned to me again.

"My name is Mackenzie—Bertha Mackenzie," she said, sticking out as white a little mitt as you ever saw.

I didn't know just as how it was proper for me to act, so I took the hand, being careful not to break it, pulled my hat from my head and told her that Bertha Mackenzie was a fine name, but it was no more than she deserved if I was any judge; and to cut across lots, so to speak, a minute later I was helping Steve move the water-barrel to a spot more convenient to the door. An hour later we had a dinner, that, considering the fact that it was wash-day, was about the best meal I ever was invited to attend. I didn't eat more than a loaf of white bread myself; but Steve seemed to have something wrong with his appetite.

From that day on, Mr. Editor, Moqui got to be a more important place than Winslow. It was a big town for the size of it, and when you wanted to get word to some cow-puncher or horse-wrangler in a hurry, you just left the message with Bertha Mackenzie over at Moqui and went on about your business, knowing that it would only be a question of time until the gent in question called.

I supposed that everybody in Arizona knew about the woman over at Moqui by the time she had been there a month. She had been there almost six months by the time Foster and Matthews had hired me and then left me to ride over there to leave some instructions about where they might be if important messages arrived. I never dreamed that they were going to meet a surprise.

When they caught up with me and the pack-mule again, over beyond the Hole in the Ground, I felt sure that I was a going to have a lot of trouble with that person from New York. As for the Big Fellow, there wasn't no foolishness about him. Railroad-building was business with him; politics was business; everything was business and that's the answer.

Foster didn't have much to say about the woman; Matthews had too much to say. As for me, I just held my peace and herded the pack-mule, for I knew that she had been elected the Female Mayor of Moqui by the unanimous vote of the party and that she had a machine behind her that included one hundred and fifty gents who would argue any old question any old way and if there was to be another candidate in the field he'd be up against a fire-eating campaign. Of course I didn't know that

fire-eating just come natural to the Big Fellow.

PART II.

FLIP, BUT GAME.

AS I remember it now, we made camp back of Flagstaff on the Frisco Mountain, the afternoon of December second. You understand, Mr. Editor, Arizona has a climate like the scale of prices in a pawnshop. Even since the State has become thoroughly respectable I've left Winslow in my shirtsleeves—meaning I, in my shirtsleeves, have left Winslow; and in the course of four hours on a coal-car express I have reached an overcoat and six feet of snow.

Down on the desert level it is never so cold that it is safe to leave the ice outdoors and there are times when you look over and see the peak of Frisco Mountain white with snow, while the landscape about you is a hundred and ten in the shade without the shade.

Shortly after Foster and Matthews followed me and the mule down into Cañon Diablo and up the other side, we run into a light snow, and by the time we'd reached the water-hole back of the Winona corral you would have thought that snowing was a regular business in that part of the country. It got dark earlier than usual with the snow in the air, and Matthews began to get uneasy.

"How far is it from here to the Ritz-Carlton or the Astor?" I heard him ask the Big Fellow.

"There's no such place in these parts," I explained to him. "If we're lucky we can make Dalzell's Spring in another hour. There's a rick of valley hay up there and plenty of water for the horses."

"But I want to have a shave and a bath before dinner," insisted Matthews; "and I suppose we won't be able to get standing room for the opera at this late hour. Do you think we'll be able to get an outside room?"

"That's the only kind they have in these parts," I replied, wishing that the flea-bit roan had kicked him in the mouth and at the same time laughing to myself when I thought of what was coming to him.

Knowing that I wasn't going to stand very much of that funny talk, I left him to toss the conversation to the Big Fellow and started in to hurry the mule a little, and an hour later we pulled up at the Spring.

I put the horses in the corral with the hayrick and started a fire. We put the tent up in the shelter of an overhanging ledge of rock, and in spite of the fact that Matthews had insisted that he was going to have a lot of fancy dishes for dinner, he eat as many soda crackers as I did and more bacon than the Big Fellow, and then asked me if I'd have the boy show him to his room.

I think he was asleep when he hit the hay. The Big Fellow rolled up in his blanket and the last thing I heard him say was that it would be an awful night to be decorating on the head end of a string; and as that didn't mean nothing to me then, I rolled over to get a chunk of stone out of the small of my back and went to sleep thinking I was one day nearer to fifty dollars than I'd been since I touched Speedy's bankroll two years ago, when I won fifty-two dollars on a dime and lost it back trying to win the dime again so I could have it for a pocket-piece.

A fellow always makes a fool of himself when he goes to thinking about what he's going to do to-morrow morning at nine o'clock. When I went to sleep that night I thought I was just five days removed from a fortune; but the fact of it was that the three of us wasn't twelve hours removed from golden harps—and me not knowing one string from the other.

While we were asleep one of the largest shipments of snow I ever saw was unloaded at our station. The snow factory must have been working day and night for a month to get out that much of the finished product and the old Frisco Mountain, above and below us, looked as if it had cornered the market.

I was out floundering about, trying to get water at the spring and dig up some firewood, when Matthews nosed out of the tent.

"Hello, Santa Claus!" he yelled at me. "I hope you put Broadway in my stocking. I say, old fellow, Central Park at its best can't beat this much."

By the time I had floundered back to the shelter of the ledge Foster was looking out on the landscape. It was evident he was anything but happy.

"Simpson," he said, "we can't travel much in snow like this."

"Not with the horses," I replied.

"No; we'll have to use the subway," said Matthews; "there's no help for it."

The Big Fellow did not seem to be in a laughing mood. He held up his finger sudden-like and we all listened.

"You can't hear a train from here, can you?" he asked.

I didn't answer him. The roar had reached my ears just as he had held up his fingers. At first it was very faint, but it was growing louder with alarming rapidity. It was just like a train coming down a ravine to a bridge.

Presently I heard a crash—another one; and we felt a jar as if half of the mountain had fallen on the other half. I knew right then that that was no place for a little horse-wrangler about my size.

"A slide!" I screamed. "Come on!"

The Big Fellow and I didn't hesitate. We had an important engagement some place else—just where we didn't know; but we started.

"Wait till I get my cigarettes!" yelled Matthews; and what I mean to say, Mr. Editor, is that he went back into the tent and got his little cigarettes afore he followed.

We didn't get far. We lacked ninety-nine and nine-tenths miles of getting as far as I wanted to get. I didn't notice that he wasn't keeping up until I looked back and saw the Big Fellow turning back to help him. By that time the roaring was so loud you could scarcely hear yourself talk; but I managed to catch a few words yelled in that piping voice from New York.

"Go on! Run! Never mind me; I'll grab the next local."

And then it was just like a million white steers had swept down on us. Foster said later that four hundred and eighty-seven Baldwin hogs running into each other couldn't have made half the noise.

The first thing I knew, I was shooting down in a mass of snow that was traveling as fast as water down a steep falls. I've been able to keep my saddle on the worst outlaws on the range; but I couldn't begin to keep my feet in that mass of moving snow. I lost sight of the Big Fellow even before I had begun to move, and he might have yelled his lungs out for all the good it would have done.

I guess it was all over in less than a minute. When I stopped imitating a snowball I was jammed against a big pine-tree and was feeling just as if an eighteen hundred-pounder had rolled on me and forgotten to get up. I could wiggle a little and my hands were free, so I began to scrape and scratch until finally my head got above the snow. In five minutes more I was on my feet and free again and looking about for my company.

The Big Fellow was just picking himself out of a fallen tree-top, two hundred feet farther down the slope. It was as plain as the cow-catcher on an engine or the horns on a Texas steer that we hadn't missed sliding into Kingdom Come by more than a hundred feet. I felt sure that it would be a waste of time to look for Matthews.

I plowed my way down to the Big Fellow and was sure glad to find that he wasn't hurt much aside of having a bad bruise on his forehead.

"Where's Matthews?" he asked.

I didn't feel like saying what was in my mind, so I just shrugged my shoulders.

We didn't feel exactly like spring colts on new grass when we started out to look for him, not knowing so much as to where to begin the search. I knew, and so did the Big Fellow, that if he had been caught in the main mass of the slide it was no use to look for him, for that had swept along with a power that tore great pine-trees from their roots, making a big patch down the mountain like a mower would make in an alfalfa field. We began to flounder about, turning here and there like men in the middle of a desert who had lost the sense of direction; and for five minutes I felt as cheerful as a horse-thief just caught in the act.

The Big Fellow kept working down the mountain-side. Finally he turned loose a man-sized yell, gave me a come-on signal, and went slipping and sliding over a bank. I followed as fast as I could and had reached the edge by the time he was at the bottom.

Fifty feet below me, with only his head, shoulders and arms above the snow, hatless and bleeding at the nose, sat Marcus Marmion Matthews.

"Are you hurt?" I asked.

"What floor is this?" he asked, paying no attention to my question. "Some rotten service this," he continued, "I wanted off at the seventh floor and here I'm clear down in the basement."

By that time Foster had reached him

and had bent down to help him on to his feet. I was scrambling down the ledge really unconvinced that the man wasn't locoed.

"Don't be in a hurry, Jim," he remarked as he held up a detaining hand to Foster, "I feel better when I sit real still. Both my feet are in a coal-hole."

"What do you mean?" asked Foster.

"Seems to be a lumberyard across my legs," explained Matthews; and by that time I was down scraping in the snow.

About the third scrape and I knew what was up. He and the trunk of a big pine-tree had been rolling down-hill together and when they stopped the tree-trunk was laying across his legs between the knees and ankles. It wasn't no sapling either.

Foster and I had no tool to work with. We were thirty minutes scraping the snow away with our hands that we might find out just how he was pinned down. The farther we went the worse it looked. The two of us couldn't begin to roll the tree-trunk and if we had been able to pry it over the chances were it would have crushed the fellow's feet.

I took my pocket-knife and started in to dig away the rock and dirt so that we could drag him clear. It was slow work and it was cold work. Foster and I took turns digging and then I got in a hurry and jammed the blade into a piece of rock and it snapped off at the handle.

"Naughty, naughty!" exclaimed Matthews when I made a few remarks about boneheaded cow-punchers and knives that wasn't exactly literature, meaning that the remarks wouldn't look well in your paper, Mr. Editor. "If you swear that way you won't catch any fish," continued Matthews—and me knowing all the time that one of his legs was broke and the other badly bent.

"You're a dead-game *hombre*," I blurted out afore I thought.

"That listens pretty good except the dead," he smiled, wiping a smear of blood from his face with his sleeve.

I'm not saying, Mr. Editor, that Matthews didn't squirm and show his teeth afore we got him from under that log; but you want to remember it wasn't exactly like riding one of those plate-glass, plush-lined parlor-cars with your feet resting on a fancy cushion and a pretty girl sitting right across the aisle from you.

It was two hours afore we had him from under and when we got him free we didn't know what to do with him, Flagstaff being twenty miles away and Moqui almost twice as far. It would have been a hard ride for Matthews on a horse. As it was we didn't fool ourselves with the hope that the horses had escaped the slide.

I finally got a fire started in the shelter of a big rock and we made Matthews as comfortable as possible. It had turned off fair-to-middling warm, and for the rest of the day we had little to fear from the cold; but there was the bad-order leg of the Little Fellow's getting bigger and bigger every minute, and I knew that once the sun went down there would be a sudden drop in the temperature and like as not it would be about as warm as a newly iced reefer with the vents down.

While the Big Fellow tried to give Matthews's leg temporary treatment I climbed back to where the camp had been to see what I could see. The landscape there looked like a Republican State ticket the day after election day in Mississippi.

Right where the hayrick had been there was a chunk of mountain as big as a helper engine and I don't suppose there was more than fifty feet of snow over the place where we had camped—enough anyhow that I didn't feel like trying to dig out my fifty-dollar saddle with my hands.

'Bout a year ago Humpy Snyder was doing the swing stunt down Supai Mountain. Seems as if the boys were in a hurry and started to make a drop of three cars of coal. They did a good job of it. Those three cars dropped twenty-one miles and Snyder made the drop with them. They went all the way down the hill and outside the fact that the wind blew half the coal away, no damage was done. The railroad fellows wanted to make a hero out of Snyder for sticking to his post; but when I got to talking to him as we were loading stock at Flagstaff a week or so later, I asked him why he stuck.

"Well," said Snyder in that drawl of his, "it's four hundred feet up on the up side and it's three feet down on the down side. With a mountain to light on going up and nothing to light on going down, which would you do, jump or be a hero?"

That's the way it is once in a while; a fellow isn't just crazy for the hero job, but there's nothing else to do. I went back to Foster and told him that the camp was in cold storage until spring, and that there

wasn't anything left for us but to walk to Flagstaff.

I'm not trying to make you believe, Mr. Editor, that a twenty-mile walk is anything unusual, not if you follow the ties of civilization with a water-tank ever so often and the making of a mulligan waiting for you at the first back door you come too. What I mean to say is that I couldn't get enthusiastic over the prospects of a twenty-mile hike through a heavy snow when it was up to Foster and I to carry Matthews and with only the short part of a short afternoon to make the run and the three of us starting out with no water in the tank and no coal in the tender, so to speak.

Foster and I discussed the prospects for a minute or two; but it was plain to see that the Big Fellow wasn't much on discussion.

"The sooner we start the quicker we'll get there," he remarked; and then he turned to Matthews.

"How do you feel?" he asked.

"It's the first of the month and the rent's due, the baby needs a pair of shoes, there's no coal in the bread-box, father's just put his wooden leg in the stove to heat mother's curling-iron and—"

I guess the Big Fellow wasn't feeling very funny. He made an impatient gesture and started to lift Matthews from the ground.

"Merry cats!" exclaimed Matthews. "You've got a mean disposition! Don't blame me for this crop of French ice-cream. *I* didn't order it."

Foster paid no attention to his chatter and we started off down the mountainside, with me leading the way toward the old stage road. We rested often. Where it was possible, Foster and I made a saddle of our hands and carried Matthews between us; but when it came to the steep places the Big Fellow took the burden for himself. I was much obliged, seeing that Matthews —though he didn't look it when he had on his knee-pants—was all of ten pounds heavier than I ever was, even on a pay-day.

We didn't exactly make express-train time going the two miles to the stage-trail; fact is, a coal-drag on a ten per cent. grade would have made us look like a herd of snails. But we kept bucking up to the job and in two hours we were down the rough slope to the stage-road.

There it was easier traveling; but at that there wasn't much danger of any of us throwing a shoe or getting hot-boxes from the speed. Every now and then we'd have to rest while the Big Fellow put the blower on, so to speak. But the Sunset Limited was traveling all the time and the way it was dropping down to the ridge told me that there would be many a mile between us and Flagstaff when the sun went down.

We had made an extra long sprint and Foster was puffing like a passenger-engine does when it's just starting a heavy train. I was urging him to rest for a minute or two and then we would make a saddle of our hands again and carry Matthews between us. Just then the Little Fellow made a peculiar sound. When I looked back at him his face was as white as the rest of the landscape and his eyes were closed.

He had fainted dead away. Foster laid him in the snow in a hurry and began rubbing his hands and face and in a few minutes he came to again. He didn't have anything to say, but we didn't have to be told that he was in a bad way and that, though we were all doing the best we could, he was suffering a great deal.

The sight of him didn't make the Big Fellow feel any worse than it did me. I guess we both were thinking that it would be a good six hours more before we got him to a doctor, even with the best kind of luck.

While Foster was working with Matthews I just stood there feeling like a signboard or a telegraph-pole or something else with no brains and a strong back, trying to figure out a way to beat the game we were up against. All of a sudden I saw a black object moving in the dusk off to the right of the trail. First I thought it was a bear; but a second look and I recognized that Spanish mule of Dad O'Connors's.

I didn't have a rope; I didn't have even a string; and, knowing some few things about mule nature, I knew I had as much chance catching the brute as I did of eating supper in the Chink chuck-house in Flagstaff that night. But there was only one thing to do—take a chance; so, leaving Foster to work over the half-conscious Matthews, I started off in the snow.

If that mule ever had any sense it lost the last pebble of it when it rode the slide out of that corral at Dalzell's Spring. I talked to it in seven kinds of language, but couldn't make it sabe. I coaxed it and cussed it, walked up to it and crawled up to it; and all I could do was to convince

myself that if I ever put a horse in a corral, in a barn, in a jail; if I ever locked a horse in a bank-vault without hobbles on him, especially if the horse was a mule, I'd be a voluntary ward at the loco farm and spend the rest of my natural life trying to make people believe that I was the man who discovered America and built the Rocky Mountains.

We played Pussy-Wants-a-Corner, Blind Man's Buff, Dare Base and a lot of parlor games down to football; but I was always it and I never got near to anything but the brute's heels, which wasn't the end that I was after.

It was dark—that kind of a light darkness that you get at night when the ground is covered with snow—by the time I got back to Foster. I was almost exhausted in body, and I was entirely exhausted in language, good, bad and Spanish. What made me feel so much better about it all was to see that fool mule following me, always keeping about twenty paces behind, ready to bolt when I turned.

"If I just had a rope!" I exclaimed as I sank down by the fire Foster had built while the chase was on.

"If I just had a tubful of hot coffee, a Morris chair, a pianola and some imported steam heat—" began Matthews with a grin that really was ghostly in the firelight. The Big Fellow wasn't in the mood for that kind of stuff and he interrupted.

"Don't you realize, Mark, that you're in a mighty serious situation?"

"I rather suspected that I was in something," replied Matthews, "but I've no idea what it is except that it's nothing you find along Broadway. If I ever get back to New York—"

I held up my hand and came to my feet about twice as quick as I ever moved afore in all my life. Both the men were surprised into silence. After a time I asked them if they heard anything, but they didn't think they had.

"Both of you listen as if your life depended on it," I said, and I pulled old Jane from my belt—the one earthly possession that I could call my own—and pointed her at the snowbank. Twice I pulled the trigger and a third time after a short pause.

"Yes, I think I heard that, all right," said Matthews.

"Listen and count them," I snapped.

We all listened. I held my breath in the fear that I had been imagining things. Once over Sunset Pass way when I lost the waterholes I got to the place where I could hear lemonade in a pitcher. Mr. Editor, did you ever hear lemonade in a pitcher? I don't mean smell it, but hear it—so thirsty you could hear it? But that ain't got anything to do with this, except knowing that a man gets that away sometimes. I was afraid that I hadn't heard anything.

A minute passed—another one; and I was ready to give it up when I heard what I was a listening for come drifting down the mountain. "One—two—and—three."

"Did you hear anything?" I asked Foster.

"Two shots and then one," he replied, and the words were scarce out of his mouth when I pulled the trigger again.

In ten or fifteen minutes the signal was repeated. I had reloaded and Jane spoke right up in answer. Foster and I had dug up all the wood handy and put it on the fire until she blazed up nicely. Directly I heard a horse coming down the stage-trail from the direction we had come.

A minute later a horse whinnied and right then I knew who was on our trail. I'd know the voice of that Big Ben horse of Steve Crandall's, no matter where I heard it.

"Wonder what Steve's been doing over this way," I said. "His bunch is below Winona camp."

"Who?" Foster asked.

"My old boss, Steve—"

Then I got tongue-tied. Big Ben came floundering through the snow, drawing up at the edge of the firelight, and his rider swung to the ground.

It was my boss all right, but it wasn't Steve Crandall. It was the Female Mayor of Moqui, Arizona, though I couldn't believe but that I was seeing things until we'd pulled her close to the fire and heard her laugh.

PART III.

THE STONY BLAIN GANG SAYS NO.

"I'VE a pink message for you, Mr. Foster," said the Female Mayor of Moqui. And she dimpled some.

The Big Fellow was so surprised to see her that he seemed to forget all his manners and language. As for me, I long since had ceased to be excited at anything the woman did, having spent all my surprise when I

heard of her riding sixty-eight miles to Weimer's ranch to deliver a plain white message to a common white cow-puncher.

"Where's Steve Crandall?" I asked.

"How should I know, Mr. Simpson?" she replied. "I haven't seen him for a week."

"Where'd you get that horse and shooting-iron?"

For a minute I thought the Female Mayor of Moqui was about to issue a proclamation informing these United States of America that one Take-a-Chance Simpson was hereby and herewith commanded to mind his own business; but instead she smiled at me the same as she did at all of us fellows when she wanted us to run an errand or help with the stovewood.

"Oh, I've had them both for over a week," she said. "I ride around the Moqui Public Square every afternoon now for my daily exercise. Mr. Crandall suggested it and the coyotes are getting so brave down my way that I just had to have protection or go without bacon, so Mr. Crandall gave me his old revolver."

"Have you got a rope?" I asked, changing the subject back to regular business. "Just give me the loan of it for a minute until I catch a pack-mule that's been making faces at me all afternoon."

I took the rope from Miss Mackenzie's saddle and started off in the direction I knew that pack-mule to be, feeling sure that it was light enough for me to make the throw that would solve our troubles.

But it wasn't necessary. That mule had heard Big Ben's whinny, too, and even a mule learns a few things after it has been knocking about the Arizona desert and mountains for a few seasons. It was looking for me as hard as I was looking for it, and I reckon it saw me coming long afore I was sure just where it was.

When I got within a few feet of it, it gave a loud snort and then stood stockstill, and I walked up to it same as if it had been a pet shepherd dog. I reckon it knew that with a horse and a rope it didn't stand a chance to continue that free, sporty life it had been leading all afternoon.

By the time I had led the brute back to the fire, Miss Mackenzie was busy—more busy in fact than she ever was on a wash-day back at Moqui. She had discovered that Matthews wasn't feeling like playing Run Sheep, Run. Foster had told her enough of the day's experience to make her glad she had come out with that message and she had pulled a regular hotel dinner out of her saddle-bag.

With her coming in on the scene just when she did, Mr. Editor, our troubles were more or less ended. We all had a little snack to eat and that made life more like living and with Big Ben and the mule it wasn't much of a trick for four people, all of them lightweights excepting the Big Fellow, to ride into Flagstaff before midnight.

I didn't need but a rope around the mule's neck to drive it, and they loaded Matthews up behind me and we started on down the stage-road. I understand Big Ben didn't take kindly to being ridden double, but Miss Mackenzie convinced him that it was the way things was a going to be done and before Matthews and me, including the mule, had gone a quarter of a mile, Miss Mackenzie and Foster, including Big Ben, had got even with us again.

None of us checked over on conversation. The feed had helped Matthews a good deal and he stood the trip better than I had expected. Foster kept repeating that it was a burning shame that the Female Mayor of Moqui had hurried out in bad weather to deliver a message that could have waited. She kept insisting that it seemed to be pretty lucky that she had been told to get the message through as quickly as she could and I kept thinking what had happened to Steve Crandall.

No one ever rode Big Ben but Steve, and that gun— Well, he might have given away his teeth or toenails, but he was proud of that firebox, and now he had went and— Well, I knew there was something wrong with Steve and I didn't think it was the effects of snake-juice either.

There being nothing much to talk about on the trip, I entertained Matthews, by request, with the story of the Female Mayor's advent into the politics of the northern Arizona range, including some of the things she'd a been a doing for some of us rough necks. When I got through, Matthews was silent for a time. Then he says, kinda low-like, cause she and Foster wasn't more than two lengths behind us:

"She sure is some real chicken to be this far from Broadway."

Flagstaff was a long ways from any place that night, Mr. Editor, but we finally got there. The farther down the mountain we traveled the less snow we found, and the last part of the trip was like riding on a stock-train. We got into Flagstaff a few

minutes after midnight and the first thing we did was interrupt a doctor's sleep.

I guess he didn't feel very good at being pulled out of bed that way and what he did to Matthews's leg more than got even. Just as soon as the Big Fellow saw the doctor start to work he left me to be the helper and he hastened off to see that the Female Mayor of Moqui had a midnight dinner and the best room to be had in Weatherbee's Hotel and then he was back at the doctor's house in time to be in on the finish.

That message told Foster that a man by the name of Mahoney was in Winslow and wanted to join him on the scouting-trip. The Big Fellow told me that Mahoney was the contractor who was to build the extension of the Arizona North and South from Winslow to Ash Fork, and since we couldn't go out in the weather without a new deal on camp-goods the next morning Foster asked me to rustle a couple of horses, so we could get back to Winslow.

Of course, seeing as how Moqui is on the Winslow Trail, we rode that far with the Female Mayor, leaving Matthews propped up in the pillows saying all kinds of naughty things about his bad-order leg and his losing out on the rest of the trip.

Just afore we left Flagstaff—Miss Mackenzie having told Matthews good-by in such a nice way that he swore he was halfway well right on the spot—the Little Fellow pulled Foster down where he could talk to him without being heard by every one in town. I guess Miss Mackenzie wouldn't have been in such a hurry to get out to Big Ben if she'd known what was going on in the house.

"Say, you old woman-hater," said Matthews kinda snappish like, "see if you can't thaw out a bit toward that girl. She's the real imported fabric. They don't have two like that in the same world."

Foster started to break away but the Little Fellow held to him.

"She's your kind, I tell you. What's building railroads compared with grabbing one like her?"

"And after I had grabbed her," laughed Foster, "what would I do with her?"

"To a man with his foot in a sling," replied Matthews, "it looks as if she could go any place you could. And when it comes down to tacks, what would you do with her isn't the question. Just think what she would do with you."

But the Big Fellow wouldn't stand for any more of that kind of conversation, and, promising to drop in every time he got within twenty miles, he and I went out to climb aboard two horses with their ribs sticking out till they looked like a couple of washboards with legs. I couldn't help but wonder what Steve Crandall would be doing for himself if he had heard that last bunch of conversation between the two men.

On the way to Moqui I watched mighty close for the sign of a thaw, but I couldn't detect no change in the temperature for better or worse. The Female Mayor insisted that we have a little lunch in the box-car before we drag it for Winslow. While I put Big Ben in the corral that Steve Crandall had built since the last time I was in Moqui, the two of them went into the car, and fifteen minutes later we were sitting down to some real cooking, including white bread.

Afore we started in on the meal Miss Mackenzie got busy with the clicker and told Winslow office to tell Mahoney that Foster was coming back after him. Even with that delay it should not have taken us two hours to eat that meal, not insinuating that there was anything lacking in quantity and quality, considering, as Foster remarked, "the cook had a short call."

But afore I knew it the woman had got Foster started on railroad-building, and he was telling her all about what he'd done and what he was a going to do, and the way he told it convinced me that railroad-building was a real business.

As for Miss Mackenzie, I don't think she took a long breath after the conversation was once started. She'd say a little something here and there that would make Foster get enthusiastic again and start him out on another story and if I hadn't interrupted I reckon we'd been sitting there till yet, me eating white bread and them building railroads.

We finally reached Winslow that afternoon, though not before I'd told all I knew about the Female Mayor of Moqui. We met Mahoney. His first name was Mike. I liked him from the first, excepting that he talked seven kinds of language that I didn't quite sabe, though I've been around the railroad more or less ever since the first one came to Arizona. I put in what remained of the afternoon getting a new outfit for the three of us, and in the evening we had supper at Tom Hesser's hostelry, Mahoney ordering up strong.

"You can switch me out a string of flats to begin with," he tells the Mongolian, "and shove in a couple of wrecked cackles and a pail of dope. Put some sinkers on the boiler-head, and turn on the blower, for I want 'em hot. Put a couple of links in a pan and fry the spuds along with 'em. And here"—shoving his knife and fork toward the Chink—"bring me some clean tools to work with."

The heathen didn't seem surprised with the order and went on about his business, but I couldn't help but wonder what kind of a human ostrich Mahoney was until the grub came on. Then I checked up and found that he had ordered a stack of hot cakes, scrambled eggs, a cup of coffee, hot biscuits, some link sausage and fried potatoes.

From the conversation that night I learned that the Arizona North and South had actually secured the Winslow-Ash Fork right-of-way, but the whole negotiations were being kept under cover. All that Foster was scouting for was to convince himself that there was no way to beat a heavy grade around Williams Mountain.

Mahoney's advance guard, the grading-gang, was to be shipped into Winslow within a month, just as soon as they finished a piece of construction over in New Mexico. The two men were congratulating themselves that everything looked favorable for the work.

I've heard Mahoney say that on a railroad, when everything was a running like a passenger-train right on its schedule, it was time to get in a supply of heavy chains and oil up the jacks and see that the wrecking-crane didn't have the sciatic rheumatism or a spavin; and I've come to know that he knew what he was a talking about.

The three of us made that scouting-trip through the Frisco range and over Williams Mountain way and things went on as nice as a Fourth of July celebration. There were no serious interruptions excepting the day Foster rode into Flagstaff to see Matthews and the two days he rode back to Moqui to file some important messages.

Mahoney was so busy figuring how long it would take to tear down a couple of mountains with a tooth-pick and a tack-hammer and Foster was so busy squinting through a telescope on three legs and I was so busy between the horses and the grub-box that none of us ever thought of Stony Blain. If we hadn't been so busy I don't reckon we'd 'a' thought of him, seeing as how Foster and Mahoney didn't know there was such a person and me thinking that he was down in the Tombstone district minding his own business in his spare time.

I'm not going to say that we didn't think of the Female Mayor of Moqui, for we did. Me and the Big Fellow talked about her quite often when we were sitting about the fire at night, but we didn't think of figuring her in, for or against, when we were talking railroad-building.

I had been drawing my fifty dollars per, for four weeks before we got back to Flagstaff again and the line-gang, with a rear-guard of brush-cutters and fence-builders, had reached Moqui and were working west out of there.

While Mahoney, Foster and Matthews were putting in the evening over in Matthews's hospital, I drifted down to Brofie's emporium to see if any of the boys were in town. The first fellow I met was Pete Norris.

He was all lit up, so to speak. He had a ring of red fire about him.

"Here's the maverick!" he yelled when he saw me coming in. "Come on Take-a-Chance. What's yu' goin' ter have?"

"A little of the same, Brofe," I says, determined not to be unsociable. "What's the news, Pete?"

"I want to know," replied Pete twisting one end of his mustache into his mouth. "Reckon you're the man what can tell us. You've been cavortin' round with 'em."

"Give me another roll, Pete. I didn't get my bet down," I says, not understanding what he was driving at.

"We're going to have another railroad," said Pete, rather hostile-like.

"So I hear," I admitted.

"Well," says he, pausing to put away another shipment of liquids, "be we going to stand for it?"

"Why not?" I asked.

"Why not?" he repeats. "Why not? Ain't this the last open range in these parts? Ain't the sheepmen grabbed the Sunset Range? Ain't the Santa Fe and the Peavine cut middlin' through what we used to have, and ain't this one a going to cut square through the Frisco range with two string o' wire fence and a railroad-track?"

"But it will be the making of these towns out here," I argued.

And then Brofe came to my aid.

"Yes," he says. "It sure will make a real town out of this place."

"But who wants to live in town?" snorted Pete. "Why, this here country is a gettin' so you can't turn around no more 'thout catching your pants on a barbed-wire fence!"

I wasn't feeling like keeping up a heavy argument, so I just told Pete straight out that I was for the railroad.

"Well, we're ag'in' it," he snapped, "and you'll wake up some day and find you're on the wrong side of the fence."

"You say we're ag'in' it," said I. "Who do you mean by *we?*"

"Stony Blain an' me an' the rest of us," says Pete.

"So you're running with Blain's herd, now!" I remarked, getting on my dignity and keeping one eye on the door. "Well, knowing Stony Blain as well as I do and seeing as how I have a slight acquaintance with a couple of the gents what's slated to build this monument of industry which can't help but be a benefit to the community if it don't do nothing but make some people hunt more open country, I reckon I'll stick on this side of the fence and take a chance with the railroad."

And with that I went over to the livery barn and crawled away back in the hay and as a result I got up the next morning with all my money unspent and Stony Blain got out of town without me seeing him except in my sleep.

I didn't have to have one of them electric headlights to see where there was a chance for some trouble for the Arizona North and South, and when Foster and me and Mahoney started for Moqui that morning I was the gent who cornered the conversation. I told Foster and Mahoney just how politics were run on the Northern Arizona Range, the Stony Blain organization having been in more or less hot water since the Hashknife days, owing to the fact that quite a bunch of steers wandered off the range one day and the trail led to Blain's stone corral twenty miles over the Rim in the Gila Valley.

There never was a bunch of steers so locoed, Mr. Editor, that they would leave good grass in the Sunset Pass country and drag it for the Gila Valley without being urged; and from that day Stony Blain hadn't been popular with some of the population in Northern Arizona.

Steve Crandall, Brer Williams, the Campbell boys and a lot of other fellows who believed in doing business on the square, formed the other party, which seemed to have the drop on the situation. Blain had a few followers who put in more time a herding bottles and poker-cards than they did cattle. There weren't so many of them, but there was enough to make quite a respectable muss when they got into action, seeing as how they always got busy in the dark of the moon.

"Fish-plates and crowbars!" mused Mahoney when I finished. "I hit the red lights over in Texas two years ago, and it was slow traveling, believe me. Bunch of cowmen over there decided we were building one too many railroads, and from that hour on we had to keep a full head of steam in the boiler all the time.

"Trouble! Well, if you got out on one of these moguls ahead of thirty cars of stock, if the injector wouldn't work and you couldn't get the firedoor open and the nozzle stopped up and every other flue leaking, and then if the critter put herself out of commission on one side, if you got a hot driving-box and dropped a wheel on the third car back and pulled out seven drawbars and four end-sills, you might think you were having trouble. That would be a lawn sociable or a meeting of the Ladies' Auxiliary Tea-Club compared with what we had in Texas."

"They won't dare to start anything around here," said Foster. "It would be no use. What can they gain by it? This road will be built if we have to have all the U. S. soldiers imported from Fort Apache as a guard."

"There's where you're wrong, Foster," replied Mahoney. "If you're running with that idea of the road you'd better slam a little air into 'em and slow down until you see how soft the track is.

"Give one of these bad actors a grease-cup full of firewater and he'll dare to start any old thing. Starting is their strong hold. It's finishing up the job where they are weak."

"Do you know Blain well," Foster asked of me.

"Oh, you might call it that," I said, not anxious to be associated with him. "I've been pretty close to him a couple of times. There wasn't nothing but a card-table atween us the last time we passed the time of day."

"Any chance to buy him off?" Mahoney

asked. "Slip him a few gold drivers and a pasteboard for a long trip east?"

"Buy him off?" snapped Foster. "Give a man real money to keep him from doing something he has no right to do. I'll buy him off! He can have all the coal he can pick up along the track without getting caught while he's picking it. When you see him again, Simpson, just tell him that for me."

I knew right then that Foster didn't understand the situation exactly, anyhow that part of it concerning me and Stony Blain; so I explained.

"I sure would like to accommodate you," I says, "and I'll carry your message to him if I see him first; but if he sees me first you may have to tell him yourself."

"Oh ho!" chuckled Mahoney, though I couldn't see what was so funny. "It's a case of the first man to the switch holds the main line. Maybe we could avoid a lot of trouble if we could just get you and Blain together."

"No sir," interrupted Foster. "None of that, Simpson. If there is to be any dirty work you let the other fellow start it."

Knowing that every man has a few constitutional rights, I just kept my mouth shut. As we pulled up at Moqui a few minutes later and the Female Mayor insisted that we let her get us a little snack to eat, Foster got to thinking of other things. So I wasn't bound by no promises when I rode around the corner of Moqui station one afternoon, and found Stony Blain making a gunplay.

PART IV.

TWO FIREBUGS MAKE A MISTAKE.

WHEN civilization and progress comes rushing into a country, coupled on to a couple of these big hogs, Mr. Editor, there is just two things what a man can do, don't make no difference how handy he is with a gun. He can climb aboard and ride or he can get out on the track and make a fool of himself and get knocked into oblivion or a story book.

There is a chance that some of the population in Northern Arizona didn't think Mahoney's gang of track-builders were the advance guard of civilization and progress; didn't realize that they were out flagging for the train of prosperity and I can't say that you could blame them much.

Mahoney's gang was what you might call a mixed train. It was so mixed it was almost a scramble. You could find everything from a Pullman car to an old-style flat with a link-and-pin coupler. If there is a country in the world that produces a two-legged animal that wasn't represented in that army, it hasn't been discovered yet.

I know the gang of Navajo and Laguna Indians which I rounded up for track-work wouldn't impress any one with a hope for a double-tracked, block-operated future. Some of them didn't have but one hair-ribbon to their names—if they really had names—and when Matthews saw them for the first time he said that the best dress among them would make Gertrude Hoffman's dancing-costume look like an overcoat and a set of furs.

By being kind and gentle with them and never hitting any of them with an eighty-pound rail or an oak tie, Mahoney was finally able to teach them which end of a shovel was meant to stick in the ground, and every day or two one of them would use a pick all day without manicuring his toes with it.

There were Moqui Indians, Navajos, Lagunas, Mexicans, several Italians, two Irishmen, several Chinamen, a yellow dog, me and Foster and Mahoney, and later Matthews, it being understood all the time that Miss Mackenzie was right on the job at Moqui, though she shouldn't be mentioned as a part of the shipment referred to above.

As soon as the actual work of track-building began, Foster was making regular trips up and down the right-of-way as regular as a way-freight, always keeping me around to run the errands he couldn't give his time to, and as I said before, things got on pretty fair until the rails were in to Moqui.

Matthews had recoverd enough to come down and take charge of the commissary car; and with thirty outfit cars shoved in on a temporary spur, two ballast-trains working between Winslow and Moqui and a rail-laying outfit tying up there every night, Moqui was about as busy a spot as there was in that part of the country.

Matthews insisted that it was getting as crowded as Madison Square, which, I understand, is a grade-crossing on that street of Broadway he's always a talking about.

Of course it wasn't according to nature that they would be able to lay that stretch

of iron road without a few accidents, not counting a mashed thumb or them minor features such as when one of the Indians would tear his pants and have to be sent to Winslow to have the doctor there sew him up.

When trouble began to arrive it was running in sections and on a fast schedule. The first section came rushing down Tucker's Draw in the form of a cloudburst, and before we could get a life-belt around the track a mile of it had been washed away and the Moqui gang had to put itself into back motion until the damage was repaired.

Every available man, including myself, went back to the washout, my specialty for the time being to look for wire-trouble, for Miss Mackenzie found that she couldn't raise Winslow. She was just in the act of climbing on to Big Ben and riding fence, so to speak, to find the trouble herself, when Foster came into the office and insisted that there was no need of her going out when I was on the pay-roll.

She finally consented to my going, telling me to ride through until I found where the wires were down and to get them clear if I could. If I couldn't I was to ride on into Winslow and report whatever I had found and let them send a regular wire-doctor out from that end.

Foster gave me a wireless for Winslow to be delivered to the trainmaster's office, if I went into town, and I rode away from Moqui never dreaming that I was to miss the greater part of a really good show.

It seems that just about the time I was making a ferryboat out of my cayuse, swimming Tucker's Draw in order to avoid a ride of a mile or two where I could have gone across on dry land, Stony Blain and Pete Norris came snaking it in from Flagstaff way, accompanied by a bad breath and a fighting disposition.

Foster and Matthews were the only men in Moqui that morning, every one else having an important engagement with Mahoney back at the washout. Foster was over in the private car used by him and Matthews and myself, the same being so private in fact that it only had a window in each end and a door in each side, and if you hadn't known that it was a private car you would have taken a chance on any old kind of a bet that it was a box car ready for the poor farm or some other charitable institution.

As I was saying afore, Foster was in the private car trying to make sense out of a bunch of blue-prints, though Matthews and I had told him time and again that it couldn't be done. Matthews was down at the head of the spur in the commissary-car weighing out a penny's worth of beans so he would be ready for the six-o'clock rush when the Mexicans got back.

It's reasonable to suppose that the Female Mayor was in her office 'tending to her own business, for that was her habit except when she was doing some little favor for somebody else.

The first notice the second section of the Trouble Special gave of its arrival, was when Pete Norris poked his head through the open window of the Female Mayor's office, said howdy and asked if there was anybody loafing around there by the name of Simpson.

The Mayor 'lowed as how there wasn't anybody by that name there, right at that moment, and Pete wanted to know where all the men folks were; and when he found out that the male population had gone fishing for a railroad down in Tucker's Draw, he took his head out of the window and disappeared.

'Twasn't more'n fifteen minutes later when Miss Mackenzie smelled smoke so strong, she says, she thought the Mexican women were getting their fires going early for their semi-annual washday. A few minutes later she heard a couple of foreign-like screams and started to the door to investigate, and there stood Stony Blain.

"You can move out of this shack any time you want to, mum," he remarked. "Only don't be too slow about it."

By that time Miss Mackenzie had got a glance at the outfit-cars down on the spur. Several of them were on fire.

"Look!" she exclaimed. "Those cars are on fire. Come on! We'll never save them with the start they have now."

Knowing her as well as I do, I can just see her grabbing for the bucket that hung on a nail just outside the door and starting off.

That wasn't Stony Blain's idea. He caught her roughly by the shoulder and pulled her back.

"Don't try to bolt," says Stony. "I've got a rope on you. Never mind those cars. If you've got anythin' in that shack that you want, get it out here and get it out quick, for I'm goin' to make this place look like a patch of cinders."

"What do you mean?" she asked, sparring for time to get her wits working.

"Just what I say," said Blain. "We're a goin' to burn this shack. I'm a goin' to show 'em who's runnin' this range."

"You must be Mr. Blain," said Miss Mackenzie. "Sorry we are not better acquainted—"

"Well, don't grieve about it, mum," he tells her. "Knowing you, wouldn't change me. There never was no skirt that could rule me like you've been ruling some of these fellows up this way. You'll know me tolerable well by the time they gets this road built through here. Come on; let's get through with it."

I want you to know, Mr. Editor, that while the box-car office didn't look much like a Harvey eating-house from the outside, it wasn't far from a Pullman car when you once got in the door, and I can't name any of the regulars on that range who hadn't contributed something toward making it what it was.

It had Navajo rugs on the walls and the floors, and Moqui pottery until it looked like a museum. There was hornwork of every description, from a footstool to a hatrack. In fact, there was most everything in there that a cow-puncher could find in Arizona, and to tell the truth, the only reason there wasn't a cow-puncher there, too, was because none of them had the nerve to pop the question, knowing that besides getting turned down, the fellow what made the first break would probably have to whip every other high-heeler from Winslow to the Rim.

The idea of having the place burned didn't appeal much to the Female Mayor and I don't doubt but what she told Blain so.

At any rate, she went back into the box car trying to think of some way to turn the tables and get word to some of us—at least to Matthews and Foster, whom she knew to be about the camp. Blain followed her in and kept so close to her that there wasn't even a chance of her taking Steve Crandall's smoke-pole from the belt that was hanging just inside the door, afore Blain saw it.

"I'll just take this," he says, as he took gun and belt from the peg. "It's a dangerous weepon fer a woman to be a foolin' with."

While he was reaching up for the belt, the Female Mayor ducked through the door into her own personal and private little room which was partitioned off in the west end of the car, slammed the door and locked it.

It wouldn't have been much of a trick for Blain to have broken down the whole shack, let alone forcing that door, but knowing the critter as well as I do, there must have been a lingering fear in his chicken heart that the woman had another shooting-iron in that room.

"You'd better come out of there," Blain warned her.

"I've a right in my own room and I'm not coming out," she replied.

"Better come out the door while you can, for I'm going to set fire to this place and you'll have to come through the wall or a window," insisted Blain.

Instead of answering, Miss Mackenzie went to the telegraph key which she had had installed by her bed and tried to get Winslow. Of course she couldn't tell just what time it was when she was working that key but I think I got the message; but knowing nothing about those dots and dashes, I didn't sabe what was going on the wire.

You see, Mr. Editor, it was like this. I crossed Tucker's Draw and found a telegraph pole, that had been standing on the bank of a little ravine, down in such a way as to let the wires into the water that was standing in the gully below. Water wasn't more than two feet deep, so I unloaded and slipped my way to the bottom of the gully and waded in to see what I could do toward getting the line into the air again.

I couldn't raise the pole, so I took the cross-arm off, but that was heavy enough to sag the wire until it touches the water again, so I decided to take the wire off the cross-arm. I got in a hurry, standing there in two feet of water which was going through my boots like as if they were a pair of sieves, and I pulled off my glove so I could work better.

Then I grabbed hold of that wire.

A student brakeman, unloaded with his back to the head end when the string was traveling twenty miles an hour, didn't have nothing on me when it come to double up, the only difference being that where he hit the cinders, I landed in the water and mud. While I was sitting there I realized that it must have been an awful important message that had hit me; and me not wanting to wreck any one's trains of thought when

it was going through that wire, a hundred miles a minute, I decided that I'd ride on to Winslow and let the lineman take a chance on that wire.

When I got back out of the gully I just happened to look off Moqui way, wondering if any of the gang back on the work had seen me trying to pick electricity off a telegraph wire, and I see a smoke lifting over the ridge. It was more or less white smoke; wasn't black enough for an engine. I just thought I'd take a chance and ride back to see what was stirring.

When I got back to where I had forded Tucker's Draw, here come Steve Crandall, swinging along Moqui way, riding a big gray horse that looked like a world-beater.

I didn't have to ask Steve where he was a going, for when he was within twenty miles of Moqui and going Moqui way the bet was odds on that he was dropping in to see that the Female Mayor of Moqui was all right.

"Where you going?" I asked, as we went into Tucker's Draw.

Not that I was wanting any information, Mr. Editor, but just for manners' sake.

"Flagstaff," says Steve. "Thought I'd drop in and see how the work's going on about Moqui. Heard Stony Blain was saying a few things about what he was going to do and—well, just thought I'd drop by and tell 'em to be looking out for him. He's been drunk for a week, so Jimmy Mallory tells me."

We rode up from the draw and when we reached the top of the ridge, two miles away, we saw all we needed to see to convince us that Moqui was having quite a little fire for the size of it; and from that moment we did less conversation and more traveling, so to speak; and I sure was surprised at that big gray.

If you stood that gray alongside of the polka-dot nag that I was riding you would have bet your last cent that the gray would walk away from my nag like a passenger engine from a handcar. But he didn't.

That's why it was me instead of Steve that come drifting around the corner of Moqui station in time to bowl Stony Blain over like a freight-hog would bowl over a two-year-old that had lingered a minute too long on the track.

A fellow can see awful fast, Mr. Editor.

I swung around the corner of the box-car station after having noticed that half the outfit-cars were burning, and as I come round the corner, here stands Stony with a gun pulled on Foster.

He saw me and I saw him. I saw him make the slightest move to turn the shooting-iron my way, but the nag was going too fast. I couldn't stop, seeing that my cayuse ain't equipped with patent brakes and automatic air; and the result was an explosion and Blain rolling in the sand.

I'll say this for Blain—he did his best. The bullet plowed into my nag's shoulder and ruined a good saddle-horse. Just as we hit, I started to unload, but before I was on the ground, Foster was on to Blain, and there wasn't no need of me interfering, for Foster handled him as if he had been a yearling. There wasn't as much excitement to the scrap as there is to a switch-engine going up a coal-shute with an empty car.

The real fun was over when Steve came drifting in with that gray blowing like an engine pumping on a leaky trainline. Just so he wouldn't feel bad about it, I let Steve help me wrap Blain in my rope; we doing a nice, careful job and nobody saying good morning or thank you, or nothing.

Just about that time the engine that was used with the steel-laying outfit and which had taken the gang back to the washout, came rolling into the smoke. Tony Thomas was driving her and he was the best little fire-fighter I ever saw.

He rolled down along the spur and opened up the blow-off cock, and while he scared some of those Mexican women and children out of seven years' growth, he beat that fire down to where we finally got the best of it with a water brigade; and an hour later we were all of us—meaning Steve and I, Foster, Mahoney, Tony Thomas, his fireman and the Female Mayor—crowded in the little office.

Matthews would have been there, too, but he had gone to see if he had another suit of clothes, for the one he was a wearing, when we found him, was as ragged as a red flag that has seen a summer's service on a work-train.

You understand, Mr. Editor, we didn't find Matthews until after Tony Thomas had been shooting the steam fireworks at the string for a few minutes. Matthews and Pete Norris had had a little show of their own, and they were lying in the shade of one of the half-burned outfit-cars, all tangled up, the only difference between the two of them being that Matthews knew how to untangle himself.

From what I could learn of the mixup, Matthews had been sitting on top of one of the outfit-cars enjoying the Arizona scenery when he heard a fuss down at the end of the string.

He started over the tops to see what was going on when he happened to get a glimpse of Pete pulling waste from a box and touching a match to it. Not understanding just what kind of a game Pete was playing, Matthews watched him for a minute and then decided that he would sneak back to the commissary and get a sawed-off, close-coupled shotgun that was growing rusty from the lack of exercise.

He was a couple of car-lengths away from the grub-car when Pete spotted him and invited him to climb down, the invitation being backed up by a gun that Matthews said was the largest one he ever saw in captivity.

Matthews was crazy scared. Everything he did indicated it, and Pete, feeling that he had his bluff shoved over, got kinda careless. He made another mistake in standing in close to the car where Matthews was climbing down, and Matthews, being so scared that a way, got so nervous that he just let go of the grab-irons and fell.

That bad leg of his hadn't got so strong that he was willing to light on the hard ground, so by giving himself a little spring as he left the ladder, Matthews was able to pick a soft spot—the said spot being Pete, who at that moment was glancing away to where the Mexican women were holding an indignation meeting.

I never took Matthews to the scale-track to get the correct figures, but I'd take a chance on his weight not being over one hundred and fifty, while Pete weighed at least thirty pounds more. One hundred and fifty pounds is a pretty good weight when it lights on a man's head and shoulders, and it bowled Pete over as if it had been a loaded mail-sack shot from the Limited. He lost his shooting-iron and a good deal of his wind, and wind was always one of Pete's long suits.

Neither one of them got up from the sand and cinders until we came down and pried them apart.

Matthews seemed to be laboring under the idea that he was matched at catch-weights for the desert championship, catch-as-catch-can, and before Pete realized that Matthews hadn't been half as scared as he let on, the gent from Broadway, New York, had slipped a half-nelson and a hammer-lock on to Pete.

With the half-nelson working over Pete's neck, about all the firebug could see was the sand where his nose was rooting, and for five minutes after the referee gave the decision to Matthews, Pete couldn't take his left arm from the middle of his back.

Where Pete proved to be real handy was with his feet, the same being dressed in heavy riding-boots and armed with a brand-new pair of spurs; and he worked that part of the machinery overtime until Matthews put the screws on so hard that in order to keep from getting his arm and neck broken, Pete was willing to lay very quiet-like, even down to his toes.

Then Tony Thomas opened up the blow-off cock, not seeing them laying there, and when we found them they were drenched to the skin and their wet clothes had picked up enough sand to give them the Arizona color for true.

While Matthews went to get another suit of clothes, seeing as how Pete's spurs had cut Matthews's pants to ribbons, we done up Pete in a neat little package in Steve Crandall's rope and loaded him into the same box car into which we had hoisted Blain, making sure that the side and end doors were blocked, though there wasn't a chance for either one of the firebugs to get out of his rope wrappings.

Mahoney had come in from the work on a handcar, bringing four men with him; and when Mahoney joined us in the office, where things were pretty much like the inside of a diner just after being mixed up in a head-end collision, Foster told us how he had just about made sense out of one of them blue-prints when he heard a big fuss outside and came out to investigate.

Seems as if whenever any one went to investigating they always went first to the office of the Female Mayor. I never stopped to figure out why, but we all did, just the same, and that's how Foster came in the door just as Stony Blain was throwing himself against the door which shut him out of Miss Mackenzie's little room.

Foster didn't say just what happened, but Blain's lunge at the door sprung it open and Miss Mackenzie had a pretty fair view of the Big Fellow grabbing Blain by the shoulders from behind and dragging him from the room to the door, where he made the mistake of tossing him bodily on to the landscape.

Of course when Blain come to his feet, Foster not following up his advantage, he had his shooting-iron uncoupled and ready for action, and he was telling Foster how his hide was going to look when he got through working the trigger.

"There wasn't a thing that I could do," explained the Female Mayor, "not a thing but wish that some one would come and come quick."

And then she kinda slipped her hand into Steve's and said:

"I never was so glad to see men folk as I was to see you and Simpson."

I could tell that Steve Crandall was mighty mad, and every time I would think of that Blain person butting around in Moqui's little city hall, scaring the wits out of our mayor—well—Mahoney, Steve and I were standing outside the door, and it was an even-money bet that we were all thinking of the same thing.

"What are we going to do with 'em?" asked Mahoney.

"Well," replied Steve, "Pete Norris is just drunk and in bad company, but Stony Blain is a cattle-rustler and a horse-thief."

"If we were over Shevelon way where Blain don't go any more," I remarked, "there wouldn't be no argument about what was a going to be done to him."

"Yes," said Steve, much as if he was thinking out loud. "If I sent word over to the Circle-Z ranch it would all be over by morning."

"If he's so strong for the fire stunt," interrupted Tony Thomas's fireman, "chain him on to that old teapot over there and let him wrestle black diamonds for a week or two." Tony Thomas was standing near enough to hear that remark.

"No, sir. No!" he broke in. "I won't have no engine of mine associating with that kind of trash. If you want the rail-laying outfit tied up for good just bring one of these boomers around the engine."

"Come ahead slow," said Mahoney. "No need of pulling the whistle wide open that way. We're not thinking of calling either of 'em for duty on your crew."

Just then Foster came out of the office.

"Some one will have to stand guard over that box car until morning," he said, speaking to all of us. "I've telegraphed Winslow and they'll send the sheriff out in the morning and we'll be rid of them."

"Why call in the sheriff?" asked Crandall.

Miss Mackenzie came out of the office at that moment and was an interested listener. The big fellow looked at Crandall, then at me and then at Mahoney, and there must have been something in our faces that indicated our thoughts. Foster stepped a little nearer.

"Because," said he, "law is law. If the law says these men shall hang, well and good."

"We've caught 'em red-handed, caught 'em pulling the spikes, as it were—" Mahoney started to argue.

"Let's not waste any time discussing the matter," says the Big Fellow as he starts away. "I'm responsible for these two men and I'll deliver them to the sheriff in the morning."

The crowd broke up. Steve and I walked around the box-car office to where my nag was standing, and we made a more careful examination of the wound in its shoulder.

"Ruined a good horse," remarked Steve after a long silence.

I was willing for Steve to do the talking, so I kept still.

"I'm going over to Winona," he finally said, "and I'll bring you over another horse in the morning, if not sooner."

"What are you a going to do, Steve?" I asked.

"I don't want you to have to tell no lies," replied Steve, "so I won't tell you none. But what's the difference between taking those coyotes out of the Winslow jail and taking 'em out of a box car?"

And with that he swung on to the big gray and started off on the Winona trail.

Things were pretty quiet in Moqui the rest of the day and evening. It was just like an engine drifting along with the steam cut off; you knew there was a lot of power hidden away some place that was just dying to get into action.

Matthews—wearing a pair of knee pants—Foster—wearing a long silence and his regular working-clothes—and I ate supper as usual in our private car. Matthews and the Chink cook did all the talking, and while they tossed a lot of language I can't recall any of it now. I hurried through so I could get back and relieve Mahoney, who was keeping his eye on the box car while I was taking on my evening fuel.

I stood guard until about ten o'clock, long enough to get sleepy like and willing for something to happen to break the monotony. About that hour the Female

Mayor came out of the city hall and walked down to the box car, which was about fifty yards from her office.

"Simpson," she said, rather anxious like, as if it had been worrying her, "have those poor men in there had anything to eat."

"I haven't fed them," I admitted.

"That's a disgrace," she said. "I'm going to get something for them right away and you're going to give it to them."

She went back to the box car and in a few minutes appeared with several sandwiches and a pot of coffee. I opened the side-door and climbed in, taking her lantern with me. Both the men were just as much tied as when we put them in and while I didn't like the idea of touching the critters, I let them have their hands so they could put away the grub.

About an hour later Miss Mackenzie came out again saying she had a rush message for Foster and bringing the joyful news to me, personally, that there was a cup of hot coffee and several slices of white bread and watermelon preserves awaiting to make my acquaintance on the little table in the office.

Knowing that there wasn't a chance for the prisoners to make a move as long as they were wrapped up in rope like they were, I sauntered over to the office and she went on down toward Foster's private car.

Miss Mackenzie made the best white bread I ever ate. I drank that cup of coffee, helped myself to another one and put away the last crumb of bread; and as the Female Mayor didn't return I sauntered back toward the box car again, knowing that she'd be passing by on her way back to the office in a few minutes, when I could express my appreciation, though the clean dishes would have done that without any further word from me.

A half-hour later I thought I heard a noise on the Winona trail. Fifteen minutes later still I knew I heard a noise back of the office, and yet Miss Mackenzie hadn't appeared. Another five minutes, and about a dozen forms that were not entirely unfamiliar to me came around the office and down toward the box car.

It was just about the hour that Foster had set to come out and relieve me on the watch. Fact is, Mr. Editor, by the time the shadows had got close enough to speak to me, Foster stepped around the corner of the car.

"Just what I expected," he remarked to me. Then he raised his voice so that the boys could all hear.

"Gentlemen," he said, "I've got a double-barreled shotgun here, loaded with slugs, and I give you fair warning I'm going to use it before I let any of you come closer to this box car."

Nobody said a word. I was sure in a bad position, like a brakeman trying to keep a foot on two cars each a going the other way. I didn't have any say coming, and for once I wasn't anxious for chips in the game.

The stillness was so oppressive that I knew something was going to break, a crown-sheet drop, or a cylinder-head blow out, or something like that, when I heard the car door creak behind us.

Foster and I turned about quickly. With another creak the door went back a foot or two and a head and shoulders appeared.

"Please, Mr. Foster," said the Female Mayor of Moqui, with a little catch in her voice that was as near a sob as it was a laugh, "won't you help me down from here?"

PART V.

THE FEMALE MAYOR AGAIN.

FOSTER was more surprised than I, and I was that surprised on finding that I had been guarding three prisoners instead of two, I couldn't make signs.

"Please help me down," repeated the Female Mayor of Moqui as she pushed the door further open. "Or maybe you'll want to keep me in here for the night and turn me over to the sheriff in the morning."

The Big Fellow was first to recover from the shock. He stepped to the door, held up his arms and Miss Mackenzie slipped into them just as if she was used to the procedure. Having never been called on to perform a similar service I'm not authority on how long it should take, but it seemed to me that Foster took just a second or two longer than was really necessary, before he lowered her gently to the ground and released her.

"You are not real angry, are you?" she asked, and she said it in such a manner that I was sure I was going to chastise a certain Big Fellow if he even intimated that he was anything but pleased with what she had done—though I had no idea what it was.

"I am sure I don't know if I am or not," admitted Foster. "What on earth have you been doing in that car?"

All the time the bunch from Winona was crowding nearer to see what was going on. They got so close that I could recognize every one of them, and Miss Mackenzie recognized Steve Crandall.

"Well, I'll tell you if you'll promise not to scold me," she said, raising her voice so we all could hear. "I didn't want to see a lot of good fellows get into a bad mixup over a couple of good-for-nothing cowards who were not worth the trouble, so I just invited Simpson in to have a bite to eat and I came out here, ruined my best skirt climbing into this car, and let the miserable wretches go."

"Great grizzly bob-cats!" exclaimed a voice in the back row. "See what we could expect if we had a woman president, don't you?"

"Shut up!" commanded Steve.

Foster poked his head into the open door. It was so dark in the car that he could not have seen the men if they had been there.

"You didn't make them a present of my rope, did you?" I asked.

"No," replied the Female Mayor with a laugh. "You and Mr. Crandall will find your property in the car. I hope you all won't be mad at me, for we've been such good friends I didn't want to see any one get hurt—not even Blain or Norris."

With that she walked right through the bunch from Winona and away toward the little box-car office.

"Well, gents," says I, when she had gone in and closed the door, "the woman wins, and those who had their money down on the queen can cash in."

But Foster wasn't in a joking humor. Without saying a word he turned about and walked down to his private car and his blueprints, while the Winona gang crowded around me to get the straight of what had happened. I didn't know any more about it than they did, and it was one o'clock in the morning when they disappeared in the darkness on the Winona trail—Steve having left me a new saddle-horse as he had promised.

The next morning Moqui looked as peaceful, except for the charred places on the outfit-cars where the fire had been, as a cliff-dwellers' village on a moonlight night. Mahoney, Matthews, Thomas—in fact no one except Miss Mackenzie, Foster and myself—even dreamed that there had been some excitement during the night.

Mahoney thought I was joking until he asked Foster what happened; and the Big Fellow said, "Nothing"—but said it in such a way that Mahoney knew there must have been a whole trainload of it.

"Do you think he was really going to fight?" Mahoney asked me that morning just before the work-train pulled out.

"No," I replied. "I don't think he was going to fight. I know he wasn't going to do anything else. He had the hammers back on that double-barreled cannon, and if Miss MacKenzie hadn't stuck her head out of that box car just when she did, there would have been a noise like a Mexican revolution in Moqui."

"I'm glad I was in the hay," remarked Mahoney as he climed onto Tony Thomas's teapot. "Between riding with this hoghead who don't know what a slow order means, and trying to keep the ballast-plow off the ground, my nerves get all the exercise they need."

And then Thomas slapped the reins and his old iron Dobbin, wheezing as if she was wind-broke, shuffled off down the track pushing several cars of ties covered with creosote, Mexicans and Indians ahead of it, and Moqui settled down for a season of peace and prosperity.

It may be that the Big Fellow had lost confidence in me after having found out what a fine little guard I had been; at any rate I wasn't called into service that day and I put in my time helping the Female Mayor tidy up the city hall.

I was fixing a place on the north side of the box-car, where she could hang a water-jar so that it would keep cool, when Foster made his first trip to the office to see if there were any messages.

Being just outside an open window and having fairly good hearing, I was able to catch some of the conversation that was going on inside the office.

"Good morning," said Foster, his voice having as much feeling in it as an emery-wheel talking to a cold chisel.

"Good morning, Mr. Foster," replied Miss Mackenzie, same as if she was taking his order in a lunch-counter.

"Any messages?" asked Foster.

"Not one," replied the woman. "You know the wire has been bad since yesterday."

"But you got that wire through to the sheriff last night," he remarked, "and got his reply."

"No," said Miss Mackenzie. "I'll be frank with you, Mr. Foster; I didn't get the message through and I didn't get a reply. You got a reply, but I wrote it."

The nail I was trying to coax into an oak plank jumped out from under the hammer and I hit my thumb, and my attention being diverted that way, Foster may have said something, but I didn't hear it. When my interest in the universe returned Miss Mackenzie was talking.

"You must not be angry with me, Mr. Foster," she was saying. "If you had known Steve Crandall and his men as well as I know them, you would have realized that there was no need to wire the sheriff. If the sheriff had been here last night there would have been real trouble. It would have been you and the sheriff against Steve Crandall and six or seven of the very bravest men in northern Arizona."

There was another long silence; and then she began again with more of an explanation which didn't really explain. Half the time I was sure that she had been working all the time to keep Crandall out of trouble; the other half it was as plain as a diamond stack on a switch-engine that she had been afraid some one was going to hurt the Big Fellow.

Foster was a good listener, I'll say that much for him. He didn't make a sound while the woman showed a disposition to talk, but after she had gone on the spot in a listening attitude for a minute or two Foster parted with a couple of words.

"I believe it would be better for you to ask the chief despatcher to transfer you to another station."

His voice sounded like a piece of rail feels on a frosty morning.

"Oh, no, you don't really mean that!" exclaimed Miss Mackenzie in alarm. "You have no complaint to make against my work as an operator, have you?"

"A woman has no business in a place like this," insisted Foster.

"But your chief despatcher believes that a woman has no business any place along a railroad," explained the woman. "The only reason he offered me Moqui was because he thought I would not take it. If you should make a complaint against me—"

"Oh, I'm not going to do that," Foster hastened to say. "But this is no place for you."

He came down on that "you" like a tarrier putting the last touch to a spike with a sixteen-pound sledge.

"But why?" asked the woman.

"Well, a construction camp is anything but a female seminary."

"I never was treated with more consideration in my life," protested the woman.

"How about yesterday?" asked Foster.

"Why, I heard about a woman who was knocked down and robbed on the main street in Albuquerque the other day," argued Miss Mackenzie. "I'm very well satisfied here where every one is my friend, except you."

"Why except me?" asked Foster.

"You want to send me away from here," she answered.

"You don't understand," Foster replied in the same tone of voice that I've heard conductors use when they felt a jolt and saw the needle on the caboose air-gage dropping down to zero, indicating that the trainline had parted again. "If it wasn't you—"

Then he stopped short as if some one had passed him a washout signal.

"Very well," he says, and with that he walked slowly back to our private car, while I went on 'tending to my own business.

For the next week or two things were so quiet in the Moqui district that my feet began to itch, and it was about all I could do to keep from dragging it back to my forty dollars and keep and the Winona corral where Steve Crandall was holding a day school for a bunch of range-horses which he was going to ship to 'Frisco as soon as they learned not to jump out of the saddle.

But Foster kept on paying me twenty-five dollars every Saturday and providing me with a soap-box at his mess table. While it was less money in the hand, it was really more money in my pocket than the fifty a week out of which I had had to take care of a flock of horses and buy grub for the three of us.

So when it came right down to pulling the pin and uncoupling myself from the job, my feet didn't itch that much. Besides, Miss Mackenzie just had to have some one about to rustle fuel and carry the water and every one else being busy with real work, it was up to me to stick around and do her switching, as it were.

The washout in Tucker's Draw set us back about two weeks, and the day we finished herding the mile of track back onto its proper range Tony Thomas insisted that he would have to go to Winslow to get his overalls cleaned and pressed and his mustache curled.

As the Female Mayor of Moqui needed a spool of black thread Number 40, Foster said I might go in with Thomas on the 771, that being the brand on Thomas's iron bronco. The 771 had broken a spring-hanger, and of all the stiff-legged pitching I ever saw, she was it.

It didn't take but a mile of traveling to make me feel as if my head had been jolted so far down that my belt was choking me, and for that reason I was on the rear end of the last flat-car listening to what Mahoney had to say about engineers who would try to make a hundred miles an hour with horse-cars on wooden rails. His remarks were interrupted when the 771 shied at a bunch of mesquit, bolted the road and started off toward the hills.

Mahoney and I were on the end of the last car, being seven cars back, in fact, and when I saw the 771 kinda rear on to her haunches, I happened to think that I'd forgotten the number of that thread Miss Mackenzie wanted. So I started back toward Moqui.

When I quit rattling the ballast I wasn't more than a car-length from the head end, being somewhat distributed in a tie-pile that was six car-lengths farther from Moqui than I was when I started back.

If I'd have owned the 771 I'd have taken her down in the ravine and shot her, Mr. Editor, for it was sure certain that she had a disposition like a locoed burro.

When she got half-way to the fence she stepped and there she was. Tony Thomas and his fireman had unloaded, and they walked up to the critter careful like, but she didn't make a move—just stood there growling and blowing steam through her nose; and of all the balky animals I ever saw, she had them beat.

They had to bring an extra gang and a derrick from Winslow to coax her back to the track, and as she hadn't then got over her sulks enough to run along and behave herself, they took most of the harness off both sides of her, hitched her on to the relief engine and actually dragged her into the big corral at Winslow, she holding back all the way.

That little mix-up tied us up another day and made me late in getting Miss Mackenzie's spool of black thread. Foster was pretty mad about the thread, but Miss Mackenzie let on as it didn't make much difference.

When things settled down to the usual run again one of the Indian laborers found time to do a little experimenting with a couple of sticks of dynamite.

After we had buried the feathers I went over to the reservation and got another buck to take his place, being sure first that he wasn't another of those investigating kind.

Two or three nights later Matthews caught a couple of Mexicans buying beans and tobacco, after the commissary-car had been closed, without the formality of leaving the cash or a requisition for the goods.

In the little argument that followed Matthews got cut loose from the tail of his nightshirt, and one of the Mexicans got a can of corn set out on his head with enough force to put the corn in the scrap-pile and the Mexican in the hospital. Another can of corn knocked the Mexican who had amputated the flag end of Matthews's night uniform into the Winslow jail.

And the next day it rained. When it rains hard in Arizona it's a sign of something. You never can be sure just what it's the sign of, but you always find out if you wait long enough. That afternoon one of the banks of the Hibbard Cut caved, and it was three days before the work-train could get through the gap.

Mahoney was as busy as a one-legged switchman working the field for two engines, and as for Foster—well—I was acting as the official callboy at Moqui, and when I turned out at 4 A. M. I was never sure whether Foster was getting up or just going to bed.

If he ever crawled into the hay you couldn't prove it by me, for when Matthews and I would put ourselves on the shelf at night Foster would be working long division with a short pencil, and when we turned out in the morning he'd be at his work-table again, as if he had been on the spot all night.

And peace and prosperity lingered about Moqui until it was getting on toward fall, and the front was so far beyond us that Mahoney was howling to have the camp moved nearer the work. Foster, as the engineer for the company, had the final say

about moving the camp, and for some reason or other he did not give his consent.

It was getting down to the season of the Pueblo Indian corn-dance and the Moqui snake-dance, and every night you could hear the Indian help howling around their camp-fires giving an imitation of a barber-shop quartet.

They were getting pretty restless, wanting to be back with the herd when the big celebrations came off, and Mahoney kept arguing that the farther they were from the reservations the better it would be for the railroad, as there was less chance of the whole bunch stampeding and leaving us with a lot of good tools with no one to work them.

I didn't know that Foster had decided to move the camp until one morning he came up to the city hall with a message in his hand.

I was sitting in the shade of the box car braiding a horsehair bridle which I had promised Miss Mackenzie, and neither of them—Foster and the Female Mayor—ever paid much attention to me, kinda considering that I was a part of the landscape and didn't count.

"You can have Simpson pack up the furniture," announced the Big Fellow.

"What has happened now?" asked Miss Mackenzie.

"You are going to leave Moqui," replied Foster.

"Rather sudden, this," smiled Miss Mackenzie. "Where am I going?"

"Winslow," announced Foster.

"But I don't want to go," protested the Female Mayor.

"I've decided that you'll have to leave Moqui," replied Foster.

"But you're not my boss," said the woman.

"I'm the boss of this work, when it comes down to that," replied Foster. "And I've decided that you're not to remain in Moqui. We're going to move the camp to Cosnino, and I'm not going to have you remain here."

"I did very well right here before you and your railroad arrived."

"But I am going to insist that you leave here," said Foster, his underjaw sticking out like the pilot on an engine.

"But I sha'n't go to Winslow for two very good reasons. One is that the chief despatcher won't have me in the main office, and the other is—I don't want to go."

If I had been Foster the first reason would have been excess tonnage.

"But you can't remain in Moqui," insisted Foster. "How'll this be as a compromise?"

Foster handed her the message he had written in advance and she read it, wrinkling up her forehead at first as if the thing didn't make sense. Then she read it again and turned kinda red in the face.

"Well, that's different," she said as she turned to the telegraph key and began to call the Winslow office.

I, being only human, Mr. Editor, was just crazy to see what could have made it all so different, and the first opportunity I got I found out. When I finally got a chance to look at the message, which Miss Mackenzie hung on the wire-hook after she had made a lot of funny marks on it that didn't mean anything to me, this is about what it said:

ALL CONCERNED. WI.

Mahoney's gang moves to Cosnino Sunday. Please arrange for lineman to install tel. office and relieve operator at Moqui who will go with us to Cosnino. FOSTER.

And after I read the message I couldn't help but remark that it did make quite a difference.

According to the schedule that Mahoney and Foster had arranged, we were to leave Moqui Sunday night, but our departure was delayed by an arrival, so to speak.

Sunday morning Steve Crandall came drifting in from Winona, and Steve and I put in most of the day finding out that there was twice as much in the Moqui city hall as a man could put in a furniture-car. Perhaps there wasn't that much, but it was sure surprising what the Female Mayor had found room for, and the more surprising part of it was that she wouldn't stand for our throwing anything away.

Steve wasn't in a very jovial mood and I kept thinking of some of the fool things he had done since the Female Mayor entered the politics of the Frisco range, and decided that what Steve needed was some good advice. It looked to me as if he was running into a bridge that wasn't there, and some one ought to flag him down.

We were carrying a box of notions—cooking-tools and magazines—over to the car which was to serve as the freight-wagon on the Cosnino trip, when I got the nerve to get out on the main line with the red fire.

"Say, Steve, there ain't nothing round this city that you're figuring on coupling on to, is there?" I asked.

"Don't look as if there was going to be anything left when this train pulls out," replied Steve.

"But you ain't figuring on trying to cut out anything from this herd, are you?" I asked, seeing that Steve hadn't understood my 19 order, him not being very strong for this railroad literature.

But he didn't make the coupling that time, so I slacked ahead and came into him hard.

"What I mean, Steve, is this: You ain't thinking none of matrimony, are you?"

Steve let go of his end of the box, and if all the cooking-tools weren't ruined it was because they were made of iron.

"You mean to ask me," said Steve, looking kinda scared at the thought of it, "if I am contemplating hitching up in double harness?"

"So to speak," I replied, as I lifted the box into the car-door, Steve not showing signs of having enough steam left to help.

"If I found some fool woman who was willing, what would I do with her?" he asked.

"Why, go to housekeeping, of course," says I.

"Housekeeping!" says Steve. "Housekeeping on horseback? There ain't no woman who could do it, and if there was, I ain't got nary a horse that would stand for it."

"But, Steve," says I, "you've been cutting up kinda strange-like since the day I found you carrying the tub for the Female Mayor."

"Simp," he says, "you're well named. What do you think I've got up here?" He pointed to his head. "Sand? There never was a house big enough to hold me. As for Miss Mackenzie, she sure is some fine filly. She can have anything and everything I've got, exceptin' me. If there's anybody else around this timber that she'd like to have, I'll do this much for her: I'll see that he's brought to the parson on the day and date she says, if I have to hog-tie him and bring him in in a wagon."

Just then Matthews came chasing up from the commissary-car with the latest news in society circles.

"The big celebration is just starting!" he exclaimed. "Better go down, gentlemen, and get in on it."

"What's doing now?" I asked, wondering if Matthews had been up to his old trick of teasing some of the animals.

"If you had it on Broadway you could sell admission tickets and make a million dollars a night," he continued.

"What is it?" asked Steve.

"Another track man," replied Matthews.

"But why all the excitement?" I asked, rather peeved at being baited that way.

"Whoops, my dear," says Matthews. "There's a brand-new Mexican baby down there in the last car, and you just want to go and see how they've got the place decorated."

"Yes," said Steve, refusing to get excited. "Every Mexican in this camp will be decorated before night."

Steve was mighty correct when he made that remark, Mr. Editor. Every Mexican in camp was surely decorated that night. Foster was decorated, too, but it wasn't exactly the same kind of decorations used by the Mexican population; and before the celebration burned the last of the fire-water the Female Mayor was perfectly willing to leave Moqui until its ancient sand-colored quiet came back to roost.

PART VI.

ALL ON ACCOUNT OF THE BABY.

THAT Sunday afternoon and evening Moqui was a good deal like a busy division without a train-despatcher, and, as might be expected, we had a head-end collision.

Matthews and I went down to the outfit-car, where the new arrival was making its first stop. A Chink chop-house on Chinese New Year didn't have anything on that box car when it came to fancy trimmings. The walls were completely covered with pieces of bright-colored paper, red, blue, green and all the other colors you could find on the fancy wrappers of the canned goods in the commissary-car.

That family must have been saving the wrappers off all the canned goods from the first day the outfit moved to Moqui.

There were tomatoes—big red ones ready to pick—growing on the walls, green peas and large yellow peaches hanging from the same limb, and every old blue-print that Foster had thrown away had found a place in the car, having first been cut into strips which were then stuck to the ceiling of the

car, one end being allowed to hang down loose and floppy-like.

The car was as crowded, when we arrived, as the Holbrook depot is, when the whole town comes down to see the mail-sack tossed off of the express, and every Mexican we met seemed to be bubbling over with good fellowship and bad whisky.

Of course, being so busy celebrating thataway, they couldn't find much time for loading up the outfit so that it would be ready to move on schedule, and after Mahoney made several vain attempts to get the Mexicans to come out and make the acquaintance of a few piles of ties which he wanted to load and take to Cosnino, he gave it up and called on the Indian population to do the work.

The new arrival was as brown as a hazelnut and about the same size, but if the celebration medicine arrived at the same time the baby did, there must have been one stork and a flock of cranes in the pack-train, for the Mexicans found enough firewater to more than satisfy their own ideas of enough, after which they began to pass the snake-juice around to the Indians.

Mr. Editor, did you ever see an Indian who had filled his boiler with bad fighting-beverage what started foaming the minute it struck the crown-sheet?

A passenger engine with the hydrophobia is nothing but a playful kitten in comparison. It doesn't make much difference what kind of a peaceful child of nature he was afore, when he gets a couple of drinks of the kind of grease that would make a hand-car hold the main line again a train of Pullmans, he puts on a plug hat or a feather-duster and some red paint, gets the idea that he's a combination football-player, boomer switchman, steam calliope, Russian toe-dancer and an all round dingbuster with whiskers and wheels. He'll fight a mountain as quick as he will an ant-hill, and he'd rather steal on thirty days' credit than take an honest gift on spot cash.

By six o'clock Sunday night we had about twenty Indians what had had twenty drinks, and then there were a few more what had had quite a few. The Mexicans hadn't been taking it on by the drink. With them it was just as if they'd run the tank under the spout, pulled down and tied the lever, and went on about their business, which in this case was celebrating.

Two hours before our special was due to leave for Cosnino you didn't have to have a headlight to see that the outfits would not be ready to move.

Mahoney opened up a brand-new shipment of bad language and calisthenics and began to distribute it among the celebrators. He got a few of them into the cars, but they were only those who would have remained any old place you might drop them.

Matthews tried to solve the problem by applying a scheme which he said was invented by the Police Department of New York City. He tried to bribe the Mexicans with extra portions of beans and red peppers, but at the end of an hour Matthews hadn't lost any beans and peppers to speak of, and the celebration was whooping her up like a stock-train drifting by a blind siding.

Mahoney finally gave up the job and we all drifted into Foster's office—the same being the private car occupied by the Big Fellow, Matthews and myself—to hold a council of war.

"Well," says Matthews, after there had been a lot of talk which didn't get us any nearer Cosnino, "guess we can just turn in for the night and be thankful that the baby wasn't twins."

But Foster had no intention of having the work laid out by the failure of the outfits to arrive at Cosnino before Monday morning, so while the rest of us remained in the car and talked about the weather, he went out for a little stroll.

He found one herd of Indians had set fire to a tie-pile and, in a circle about it, were using up enough energy to build forty railroads. They were dancing the grizzly bear and the turkey trot mixed up with a few fancy steps that haven't got an American name. Foster wasn't so much against dancing as a pastime, but he didn't fancy seeing almost a half carload of brand new ties going up in smoke; and as the dancers didn't seem to understand or appreciate his oratory, he grabbed one of the big fellows and tried to shake him back to a degree of sobriety.

I don't suppose you could criticize the brand of shaking that Indian got, for the Big Fellow always did a job proper when he once started in, but you couldn't expect one man to shake the whole crowd of redskins—not when they came at him in one cut, so to speak.

The fact is, Mr. Editor, Foster didn't miss being a cinder by more than a jump

and a half, that being the distance between him and the Indian nearest, when he reached the steps leading up to the car; the aforementioned Indian showing no disposition to remain on the outside of the private office until Matthews put his foot in his face as he was coming up the steps.

"It's like old times," smiled Steve Crandall as he went to uncoupling his pepper-box from his belt.

Foster didn't have any wind to spare, but he managed to express an earnest wish that Steve put up his shooting-iron before any one got started on the trail to the Happy Hunting-Ground.

The mention of smoke-poles reminded Matthews that he had left the sawed-off shotgun in the commissary-car, and he and I went down to get it; not that we expected to be called upon to use it, but we wanted to be sure that no one else used it.

When we got down to the car we found the side-door ripped off, and all of the beans and peppers which Matthews couldn't give away as bribes, had been stolen, together with the smoking-tobacco and a couple of cases of canned goods; and the only reason there was some overalls and gloves left in the car, was because there were more than the gang could carry away on one trip.

Did they overlook the shotgun? They did—not. They didn't even overlook Matthews's pocket knife. I began to feel that there was just the bare chance that Moqui was to have a real celebration before the night was over.

There wasn't nothing much for us to do but to go back to the private car and break the news. Foster immediately sent me over to the caboose and we got out the crew that was putting in its Sunday sleeping, trying to make up for the time they had lost during the week.

Fortunately, the fireman had the engine ready for service, having expected us to pull out for Cosnino in about and hour, and we started in to switch the commissary-car so that it would be first out on the spur, and consequently close to both the box-car station and our private car, where we could watch it.

Tony Thomas seemed rather peeved at being chased out for switching-service, and when he went in on the string he hit them a jolt that sent chills and fever through the whole line, clear down to where the celebration had originated. That jolt mussed up every Mexican parlor in the string, and the celebrators began to pour out of the cars yelling murder in seven kinds of languages.

The first thing Tony knew, rocks, spikes and fishplates were coming his way in L. C. L. shipments, and the traincrew that had been working the field beat it for the caboose and their brake-clubs.

That was about how the thing started, Mr. Editor. The Big Fellow got us in bad with the red population, and Tony Thomas put us in wrong with the brown, and the only ones we were on speaking terms with was the whites; and while their quality was A1, they lacked a little in quantity.

About the time it began to hail railroad iron on Tony Thomas's engine, he got good and sore, coming down from the gangway with a monkey wrench in one hand and one of those long-necked oil-cans in the other. Matthews slipped from the private car with a big heavy cane which he brought all the way from Broadway, New York, and Tony's fireman couldn't find anything better than the scoop, so he climbed out, carrying that all cocked and ready for action.

The three of them went into action so quick that the rest of us didn't know just what was coming off until they had bowled over a couple of Mexicans, and the rest of the revolutionists had beat it back down the spur, calling for reenforcements in a loud foreign tongue.

Foster finally got down from the private car and interrupted Tony's war-song.

"Pull them out on the main line," Foster ordered.

Tony climbed back on the engine, as did his fireman, and when he pulled ahead about eight of the cars held together. By that time the train crew, each armed with a brake-club, came out of the caboose.

"Set that cut of cars that Thomas is coupled on to, out on the main line," ordered Foster. "Then come in on the siding here and get this string. We're going to Cosnino to-night if we have to leave these drunken heathens behind."

By the time Thomas had pulled the first cut from the spur and was backing in on the cars on the siding of which our car was the first out, both the Mexicans and Indians seemed to realize what was going on, and while they were not ready to flag the rest of the celebration they didn't want the teapot walking away with their happy homes, so to speak.

They came swarming from a half-dozen directions, and it looked for a time as if they were going to try to rush us and take charge of the engine.

"You and Crandall had better run over to the station office," advised Foster. "I've no idea where this thing is going to end."

The suggestion met with Crandall's full approval and we started.

"And don't forget!" called Foster. "Under no circumstances do I want you to use a revolver, unless—"

"I understand," Crandall interrupted, he being in a position to give the Big Fellow all the slack talk he wanted to, seeing as how he wasn't on the pay-roll. "We'll promise to waste no shells."

Miss Mackenzie was busy packing her trunk, which she had left to the last, seeing as how she was planning on putting the telegraph instruments in it and didn't want to cut them out until the last minute. She knew that everything wasn't just as peaceful as it should be on a Sunday evening, but it being her way to 'tend mostly to her own affairs, she hadn't been out to investigate.

"What's all the noise about?" she asked as we came into the box car.

"I think a few Mexicans and Indians are trying to commit suicide," replied Steve.

"They are celebrating the arrival of a new baby, and they don't want to quit celebrating long enough to be moved over to Cosnino," I explained.

"But we are going just the same, aren't we?" she asked.

"Well," replied Steve, "they say we ain't going and we say we ain't staying, and that's as far as the votin' has got."

Just then we heard a loud Mongolian yell outside, and Steve and I hurried to the door in time to see Wung Foo, Foster's cook, coming up from the farther end of the string, dividing the dusk like a double-headed snowplow, minus his cue and his wooden shoes; meaning, of course, that Foo checked short on the baggage.

Foo was singing a swan-song in hog-Latin, and, a car-length behind, came one of our little track-builders of Indian extraction, carrying the meat-cleaver which Foo used for everything from splitting kindling to chopping meat.

Although Foo wasn't making the fastest time in the world, he was running in a straight line, while the Indian was running twice as fast and twice as far; so it was anybody's race until Foo saw us standing in the door and bolted into the car at a speed that all but put him clear through the other side of the city hall.

After Foo was inside Steve and I shoved the heavy door shut, and the warrior outside being unable to get himself into reverse motion in time to prevent, rammed his eagle-nosed front end into some of the hardest wood ever imported to Arizona.

While the buck outside seemed to be calling the referee's attention to the fact that he had been kicked in the face by a box car, Steve began to protest against playing the game according to the new rules.

"Foster is wrong, dead wrong!" he exclaimed. "The best medicine in the world for that crowd of wild ones out there is a couple of lead pills. If they see he means business they'll settle down mighty quick."

"Oh, mercy me!" exclaimed Miss Mackenzie, showing alarm for the first time. "Is it really that serious? I thought it was just one of those general fights between the men."

"I don't know as I'd say it was serious," I explained. "Serious isn't just the right word when you're in a corner and apt to get a butcher knife—"

"What are you talking about?" interrupted Steve. "There's no danger of any one getting a butcher knife stuck into 'em."

"No, slir, lee!" exclaimed Foo, who was getting some of his Oriental dignity back. "He no catchem blucher knife, he catchem mleat ax. Allee time mluch locoed."

"Correct, Steve," I admitted. "With both of you against me, I'll give up. No chance to get tickled with a butcher knife, but a lot of chances to get caressed on your think-tank with a meat-ax. I wouldn't hardly call it serious."

"But is there honestly danger of—of—"

Then Miss Mackenzie pressed her face to the window and forgot to finish her sentence.

Things had been entirely too quiet outside for about five minutes, and Steve again opened the side door of the city hall and looked out. All the white population was standing near the engine, apparently discussing ways and means.

I learned afterward that all the argument was as to whether the caboose would be taken next to the engine, or tacked onto the end of the train where it belonged. Foster was insisting that it was just as well to let the engine pick it up on the south passing-track, and take it on the head end, while

Jimmy Dulin, the conductor, was trying to show him that, according to the Standard Book of Rules and nature, the tail end of the train should be behind.

Dulin won the argument, and Tony Thomas began to pull the string of sixteen or seventeen cars up the main line so that he could back in on the caboose.

The Mexicans, with their Indian allies, were not so drunk but that they had cunning enough to wait until the engine was farthest from the place they were going to rush, before they came on.

"There's going to be something doing out here in just a minute," Steve announced. "You don't want to forget, Take-a-Chance, that there's three of my horses in the corral that you and I are supposed to ride away from here this evening."

"I'd been thinking about that, Steve," I admitted. "They'd better have the saddles on so we can go in a hurry if it's necessary."

"I'll go out and see to 'em," says Steve. "And if the show gets interesting just yell for me."

Steve hadn't been gone five minutes, and Tony Thomas had just started the string back on to the south passing-track when the herd that had been hanging in the background started toward the city hall and the men who were still standing near the main line.

The two brakemen had gone with the train, so Mahoney, Foster, Matthews and Dulin made up the army; Dulin and Matthews being armed—the first with a club and the last with a cane. Of course, it was getting dark, being past eight o'clock in the evening, and I couldn't be sure how many rebels there were, but I'd take a chance on a bet that there must have been at least thirty, anyway.

When they got almost to where Foster was they threw the switch and come in on our track, making a rush for the box-car station.

They fired a volley of rocks, and then began to dance and yell about the place as if they expected to knock the walls of the old car down with vocal ammunition.

Foster told me afterward that as long as the rioters confined their energies to music he and the rest of the whites let them go to it. As for me, I stood back inside the door, where I had a good range, and waited for the first dark-complexioned gent to stick his head through, feeling certain that I could stop the first rush without calling for the reserves.

Miss Mackenzie wasn't saying a word.

She had gone into her little room at the end of the car, and I thought I heard her close down the lid of her trunk; but just at that minute some one shied a shipment of spikes through the window in my end of the city hall, and the racket made it impossible for me to distinguish just what Miss Mackenzie had done.

"Are you all right?" she called, and I thought her voice sounded as calm-like as usual.

"Like an engine with a new coat of paint," I answered. "If I felt any better you couldn't keep me in this henhouse another minute."

Just then I heard a yell from outside, and I couldn't resist opening the side-door an inch, so I could see out. And I wouldn't have missed it for a week's pay.

It looked as if our genial fellow townsman, Mr. Foster, had suddenly grown very peevish. It wasn't his idea of patriotism to stand by and see a gang throw rocks at the city hall, especially when the city hall was harboring the Female Mayor of Moqui, and he had started in to argue the question.

I saw him set out a left swing on a Mex music-box, and he sure stopped that tune between stations, as it were.

The Mexican went to the ground like a lump of coal.

Foster then caught one of his erstwhile Indian employees by the neck, gave him a punch in the face and threw him—literally threw him—into the middle of the bunch.

By that time Matthews had started in with his Broadway walking-stick, and I found out then what use one of them might be. I guess Dulin had been waiting all evening for a real chance to swing his brake-club. As for Mahoney, he had hands on him like Janney knuckles, and he didn't need anything more in the way of self-protection.

Foster was coming right through the bunch for the door, and there wasn't any of them that was having any luck stopping him. He paid about as much attention to them as a helper engine would to a Navajo goat; and the goat, after the collision, couldn't have been any more folded up than some of that gang was, after they had collided with the Big Fellow's hands or feet or both.

With the opposition so drunk that it got

in its own way, it didn't stand a chance to win, and after a minute or two of fast traveling the rebels began to back away.

Foster didn't seem to be anxious to carry the fight to them. All he wanted them to do was to leave the Moqui City Hall alone, and when the enemy backed off for a breathing-spell he pulled out his big red handkerchief and mopped some of the sweat from his brow, and watched Matthews and Dulin laying about themselves with the two shinny-clubs.

For a minute the uproar seemed to quiet down. I heard the rear shack calling out to Dulin that the boat was ready to drag it any time he was. I think Foster was just turning to walk into the office where Miss Mackenzie, the Chink and I were, when it seemed as if a ton of dynamite went off just a foot and a half from my head.

I knew that the box car had been blown up, and for a second or two I was holding my breath, wondering if I would come down on my head or feet. Then I jumped across the office and through the door into that little room which had always been private to Miss Mackenzie.

And then—well—for once in my life, Mr. Editor, I saw red and didn't know what to do. She was half kneeling, half standing before the little table from which she had taken the telegraph key. Her head had fallen forward. One hand, holding the old cartridge-belt, was resting against the cleat of the little window, which had been pushed half-way back. Her other hand was resting on the table; and in it, or rather by it—for she had released her hold—was the old .44 that Steve gave her a long time afore.

Nobody ever accused me of being a lightning calculator. For a minute I couldn't understand what had happened. I stood there like the sign-post at a railroad-crossing. In that minute I heard the sound of horses' hoofs on the cinders before the city hall; then I heard another shot, and a minute later Steve Crandall's own yap and more musketry as he rode down toward the spur.

Just then Foster pulled open the side-door and found me standing there like a dead engine. I looked at him, and I guess my face gave me away.

"What's the trouble?" he asked, as he brushed passed me.

Then he saw what I saw, and his face took on an expression I don't never want to see again.

He stepped toward her very slowly, laid his hands on her, then lifted her away from the table and laid her back on the floor, me taking off my dirty, ragged, cheap, measly, smelly coat and a folding it the best I knew how, for to lay under her head.

"Jim Foster," I says, as he was bending over her, "if that woman dies me and Steve Crandall will be the cause of you losing every Mexican and Indian laborer you've got here, or that you can get, for I'll take a chance on swinging if I don't—"

"Get me some water and get it quick," says Foster, and I was through the door and half-way to the engine, which was fifty yards away, before he had finished.

PART VII.

TWO TELEGRAMS SPILL THE BEANS.

THE way that Foster worked, Miss Mackenzie's coming to in a few minutes didn't surprise me as much as the fact that she didn't seem to be hurt.

She wasn't just the woman you would expect to climb on the piano at the sight of a mouse, or throw herself into a faint at the sight of a drunken Mexican.

When she first opened her eyes, she looked into Foster's face and didn't seem to recognize him. You couldn't blame her much, Mr. Editor, for Foster had a badly blacked eye and a bruise on his forehead, and some one had tried to rip his left coat-sleeve from the rest of the garment.

"Is he all right?" she asked, rather feeble-like.

"Sure!" replied Foster in a tone that indicated that he, at least, was feeling better than he had felt all evening. "Every one is all right. It's all over now. Just as soon as you feel equal to being moved, we'll put you in the caboose and then we'll be off for Cosnino."

The Female Mayor sat up, and, again in full command of her senses, she didn't so much as intimate who she was talking about when she asked if "he was all right."

A little later she was on her feet, apparently as chipper as ever, and Foster went out to have Tony Thomas back the string down the main line and spot the caboose as near the depot as possible, so Miss Mackenzie wouldn't have to walk any farther than necessary.

As Foster went out, Matthews came in.

"You'll excuse my appearance," he be-

gan, bowing to Miss Mackenzie. "I've just been trying to buy a ticket for the World's Series."

He looked more like he had been run through a flue-roller, with the top gone from his derby hat, his collar hanging down his back and his coat divided fore and aft. But his Broadway cane was still in perfect condition.

"You missed the fun," he laughed. "You should have seen Steve doing the cavalry act out there a minute ago. He came shooting up from the corral, that Big-Ben horse cutting capers like a circus performer, and the two of them rides square into the bunch of Mexicans and Indians, rolling them right and left. Then just to make the scene realistic Steve begins to pump his revolver, shooting holes in the air; and if that gang had been perfectly sober, they couldn't have disappeared any faster or more completely."

Matthews had to stop for a minute and laugh at the thought of it.

"If they don't get some of those redskins stopped before they reach the Battery, there'll be a lot of new fish-food in the bay," he snickered.

But Miss Mackenzie didn't enter into the fun of it. It seemed as if she was trying to get up nerve enough to look out of the window again. Finally she must have given it up. She sat down on the trunk, and for a minute I thought she was going to faint again.

"Why don't some one say it?" she asked.

"Tell me what you want said," replied Matthews. "And I'll say it for you no matter how naughty it is."

"Have I killed some one?" she asked, shrinking from her own words.

Then it began to dawn on me, Mr. Editor, that there was more behind that faint than just a nervous woman.

"Did you shoot at some one?" I asked.

She nodded.

"I saw one of the Mexicans crawling out from that tie-pile. He had a shotgun, and when he put it to his shoulder I was afraid. I couldn't tell for sure at whom he was aiming, but I think it was Mr. Foster. Then I took Steve's old revolver and shot."

"I heard a shot," I admitted, "but thought it was just outside."

And then I went out to make a little investigation, leaving Matthews in the office.

The tie-pile was about three car-lengths from the window, and less than six car-lengths from where Foster had been standing at the time. The very first thing I found was the sawed-off shotgun which had been stolen from the commissary-car.

I walked around the tie-pile without finding any one, then I happened to look over to a pile of old scrap, mostly side stakes and ends from ballast flats. At first I wasn't sure whether I saw something or just a shadow, but when I walked over to it, there wasn't any doubt as to what it was, and it didn't need any help of mine.

Then I went hunting for Steve Crandall. He came walking up from the far end of the spur, leading Big Ben behind him.

"You've got yourself in bad again," I said, as I waited for him to reach me.

"Yes, I suppose so," replied Steve. "But, Take-a-Chance, it was worth the money to see those heathens take to the brush."

And Steve began to laugh.

"But you killed one of them," I informed him.

"Then he died of fright," replied Steve, in the middle of his laugh. "I was shooting in the air all the time."

I took Steve over to the scrap-pile and showed him what was there.

"Now, listen, Steve," I began. "This ain't no more than this heathen deserved, for he was just ready to pull the trigger on that old shotgun of Matthews, having the business end of it pointed in the general direction of Foster, when some one annulled his running-orders."

"But I didn't do it!" protested Steve.

"Now, here, Steve!" said I, kinda hostile like, feeling he should see the point without having it driven home with a steam hammer. "Miss Mackenzie was the first to see this Mexican and, of course, realizing that he wasn't up to no good deed, she says nothing to nobody; just gets that old gun you gave her and stuck it out the window there, and pulled the trigger.

"It stands to reason that a woman, shooting in the dark that way, couldn't have killed any one. It ain't right and proper for the Female Mayor of Moqui to have a killing hooked on to her reputation, especially when she's all broke up over the whole affair. I come out here to investigate, and no one, not even she, knows what has happened. It's just you and me for it, and you being the gentleman who was seen riding down Main Street, working firearms under steam, of course, you are the gent who started the bullet that this fellow stopped."

"Yes," says Steve, after a minute of thought. "I guess you're right, Simp. We'll just keep quiet until they get aboard that train. You and I'll be remaining behind anyhow, since we are going to take the stock over afoot, and we can kinda keep every one away from this territory, so that she don't need to know that she's a dead game woman and a real shot. The news might not please her."

And that's about the way it was, Mr. Editor, a half hour later, when every one but Steve and I and the celebrators, climbed on to Dulin's caboose. And Tony Thomas's engine, giving two spiteful little barks, the train pulled out for Cosnino, taking with it all the history Moqui ever had. The Chink was so scared he didn't know Miss Mackenzie had shot; Matthews said he'd keep his mouth shut, and I knew the woman was anxious to forget it all.

As soon as the tail-lights had vanished Steve and I went over to the corral, it being entirely out of the danger zone, and tried to decide what we should do about the dead Mexican.

While we were debating the question some of his gang stumbled on to him, and there wasn't anything left for us to do but to climb aboard our horses, and, with me leading the extra one, drag it for Cosnino, twenty-two miles away.

It was a regular Arizona night, and after the excitement of the getaway at Moqui, Steve and I took our time. It was about four o'clock in the morning when we finally drifted into Cosnino, which is just at the edge of the heavy timber that continues from there to timber-line on the Frisco mountains.

With saddles for pillows, Steve and I enjoyed our rest under a pine-tree, and the sun was up when we awoke to find Tony Thomas's little engine butting around, getting acquainted with its new home.

You understand, Mr. Editor, there had been a few of the Mexicans and Indians who had not been flirting with the fighting tea, probably a dozen in all, and there may have been another dozen so far gone that they couldn't get off the cars when the train started. So Mahoney and Foster had a small gang of men when they arrived at Cosnino, and they put in most of the morning getting the place ship-shape. There being nothing in particular to keep Steve with us, he went on into Flagstaff, and shortly after noon we took the engine and caboose and dropped down to Moqui to see how the crop of headaches was getting on.

We all knew that the minute the liquor wore off the rest of the hired help would be as humble and quiet-like as they had been troublesome, and that they'd be willing enough to climb into the rest of the out-fit cars and be taken to Cosnino.

The fact is, it would be hard to find one of them who could tell you what the fuss was about.

We found as much of Moqui as we had left the night before still on the map, and those who were not really sober had such a pain in their heads that they didn't care what became of them. But an unexpected complication—that is, it was unexpected to every one but me—delayed us an hour or so.

It seems that a couple of the gang had bolted and carried the news to Winslow that there had been a murder in Moqui. The sheriff of Navajo County and a couple of deputies arrived just about the time Tony Thomas stopped his engine and let the caboose run into it.

Foster was sure that if there had been a killing it must have been after the train left the night before; but that wasn't according to the record the sheriff had, and finally, after he had talked to every Mexican in the camp, he came over my way.

"Out trying to win a few Mexican votes?" I asked as he came up.

"Not exactly," replies Hank. "A feller has to investigate these little troubles. Understand you and Steve Crandall was a shooting up the town last night?"

"I wouldn't say it exactly that a way," I replied.

Just then Foster broke in.

"Crandall did do some shooting," he explained, "but only after the situation was serious, and then he only shot in the air."

Hank looked at the Big Fellow for a minute afore he remarked:

"Your talk about a serious situation and Crandall shooting in the air don't exactly jibe with Crandall's reputation. He hain't the man to unload a lot of high-priced ammunition in the air in a serious situation."

"But that's what he did," insisted Foster.

"Well," remarked Hank, "maybe so. But there's a dead man over here, and a certain Mr. Crandall was seen riding down this strip of country carrying his shooting-irons in a careless sort of way, and I reckon he'll have to explain a little."

Foster was some surprised to learn that

the war hadn't been without its victim, though he insisted that he was sure Crandall hadn't done the shooting.

"Let him say so, then," replied Hank. "His word's good enough for me. Where is he?"

"Over Flagstaff way," I replied.

"Another finger of suspicion. He's out of the county by daylight. That's in Cosnino County," said Hank. "And it's up to their sheriff to pick him up, and he's welcome to the job."

After the sheriff had decided he had gathered all the evidence he could, we let the Mexicans give the body decent burial, and we were several hours late when Tony Thomas pulled the whistle for Cosnino.

When we were all together in the caboose —meaning the white population, of course —I suggested that it would be just as well if everybody kept his mouth shut, as Miss Mackenzie couldn't help but feel bad if she knew that some one had been killed. Foster admitted that was true and backed me up in the suggestion.

As soon as I could get away from Cosnino, I climbed on my cayuse and drug it for Flagstaff, hoping to catch Steve before he left there for Winona. I found him over at the Chink's, taking on his evening's grub.

I ordered about six bits in ham and eggs, and while we were eating I told him the latest development at Moqui, and how the sheriff had been out looking for him. We were down to our third tank of coffee when Bob Roberts comes drifting in the front door.

Bob and Steve, several years before, had had a head-in over a mining-claim, and they hadn't been none too good friends since.

"I've got a warrant for you," says Bob.

"What have I been doing?" asked Steve.

"You ought to know," says Bob.

"Some more of my horses got on to the government reserve?" asks Steve.

"No," says Bob. "They want you down in Navajo County for killing a Mexican last night at Moqui.'

"Did I kill a Mexican last night?" Steve asks.

"You ought to know," says Bob. "Here's the message asking me to pick you up."

"Well, don't pick me up until I'm through eating, because this Chink needs the money," says Steve. "Won't you have a cup of coffee, Bob?"

Bob sat down and Steve talked a blue streak for a half-hour. Then he paid the Chink for his supper and mine, too, including the cup of Java Bob had taken.

"Now, Bob!" he says. "What are you going to do with me after you pick me up?"

"Have to hold you until morning and then take you down to Winslow," he says.

"Then we won't be starting until morning," says Steve.

" 'Bout eight o'clock to-morrow morning," says Bob.

"That suits me," says Steve. "I'll meet you here at eight. In the mean time don't do nothing devilish."

And Steve backed out the door, and Bob, knowing the nature of the critter, just let him back.

"Pinched!" exclaimed Steve when we were out on the street. "Just see what a stain you've smeared on to my young life."

"But what are we to do?" I asked.

"The question is, what's the law going to do?" replied Steve. "I'll show up in the morning and ride down to Winslow, and they'll take me up before Justice Tomlins and we'll spend a pleasant little afternoon together; and afore I leave, the justice will write me out a bill of health saying I'm good and pure and not guilty; and then I'll ride back to Winona and start in to attend to my own business."

It might have gone off as smooth as Steve said it would, if Hank hadn't cut in on the wire at the wrong moment. I went back to Cosnino and posted Foster on what was coming off, and it seemed to worry him a heap.

At first he was in for taking Tony Thomas's engine and running into Winslow to see that Steve got a square deal. I convinced him that it wasn't necessary, since if Steve got in any real serious trouble he'd let me know soon enough.

But Hank wanted all the testimony to go on the records, so he goes over and gives the new telegraph line a couple of messages. Of course, he had to be very careful to sign his full name and write "Sheriff of Navajo County, Territory of Arizona," under it; and of course the only person who could receive those messages at Cosnino was Miss Mackenzie.

Foster and I was down in the private office, talking about the case, when Miss Mackenzie came up the crude steps and into the car, without knocking. Her face was as white as a piece of clip.

"What has happened to Mr. Crandall?" she asked, and though I tried to keep my head turned so she couldn't possibly expect me to answer, I knew she was asking me.

"Why—er—that is—" Foster was doing his best to get started, but he seemed to be out of sand and his drivers wouldn't hold the rails.

"What *has* happened?" she cried. "What do these messages mean?"

And she put the two messages on Foster's work-table.

Hank always was strong for his jokes. The messages he sent me read:

> THOMAS, alias TAKE-A-CHANCE SIMPSON, Cosnino, Arizona:
> If you don't want us to hang your sometimes boss at sunrise, you had better come to Winslow and help prove that he's a man of good character and peaceful disposition

He toned down a little when he wrote Foster's message, but there wasn't much chance for Miss Mackenzie not to understand it:

> Justice Tomlins says for you to come to Winslow as witness and tell what you know about Crandall's killing that Mexican at Moqui. It is a matter of form before he releases the defendant.

"Please tell me what these messages mean," Miss Mackenzie begged.

"It means," said I, "that a red ant could put Hank's brains in a wheelbarrow and push 'em up Frisco Mountain without a helper. It means—"

Foster interrupted. It was evident that he realized there was no use trying to conceal the facts, and the quickest way out of the situation was to make a clean breast of the affair.

"Listen, Miss Mackenzie," he began. "These messages mean that Mr. Crandall is to go through the formality of a trial. You see, when we went back to Moqui we found that there had evidently been a very serious quarrel after we left there Sunday night. The fact is, one of the Mexicans was killed and, of course, since Mr. Crandall was known to have made a display of firearms, the officers are making an investigation. There is no chance of their being able to connect him with the killing."

Foster was talking as earnestly as a man could, and there was I, standing out in the middle of the car, giving him slow signs, washouts, back up, and trying to head him in on an ice-track or even ditch him, rather than let him run straight down the main line; but he didn't see my signal, and of course he finally stopped with an awful bump.

"Where was the Mexican's body when they found it?" asked Miss Mackenzie.

I made a final effort to save the passengers.

"Oh, he was away down behind that old scrap-pile—" I began.

"Yes," interrupted Foster. "When they found him, he was near the scrap-pile, but there was evidence to show that he had been shot while near the old tie-pile, closer to the station."

Just for a second I thought the woman was going to fall, but she steadied herself with one hand on an old blue-print cabinet.

"Then I *did* kill him," she said very quietly.

"You killed him!" repeated Foster. "You?"

"Oh, Mr. Simpson, you should have told me!" said Miss Mackenzie, looking at me in a way that made me feel like I was a train-robber, or a fellow who had sneaked up behind a little fawn and shot it while it slept.

"Simpson!" said the Big Fellow rather sternly, "if you knew, you should have told me."

"Yes," says I, still feeling pretty sore on Hank. "The next time I know anything I'll put it in the newspaper. Miss Mackenzie, I didn't tell you because I knew you'd feel bad about it, and there never was a drunken Mexican that was worth your cryin' about him.

"As for you, Foster, I didn't tell you—well—'cause I didn't want you to feel too good."

And with that I bolted the office, for I didn't want to run any chance of embarrassing nobody.

PART VIII.

STONY BLAIN HELPS FOSTER OUT.

TONY THOMAS used to say the easiest way to duck trouble when you run through a switch was to make a full report of it before some one else made a report that wasn't so full; and after this I'm going to take a chance on that.

When the Female Mayor of Moqui learned that the long limb of the law had

grabbed Steve and yanked him into court, like a mail-snatcher reaches out and yanks a pouch of postage into a mail-car, she made the whole herd of us feel as cheap as a cluster of cinders in the ash-pile.

She wouldn't listen to anything but that she should hurry to Winslow and tell all she knew about the Moqui shooting. We went. It was the only time in Tony Thomas's life that he didn't blow up on a short call.

When Miss Mackenzie told Tony that she was going to Winslow, Tony just run along to the barn and got the 771 out of the stall, hitched her up to the wagon, and we all went.

When the girl had made her 1178 report on the shooting, Justice Tomlins gave Steve running-orders, with rights over the entire territory of Arizona. The squire was in for decorating the Female Mayor of Moqui with a gold medal, but that didn't make her feel cheerful-like, when she thought of what she'd done, and she told me with her own lips that if she wasn't convinced that the Mexican intended to kill Foster she couldn't bear to think of having shot him.

After that little legal affair in Winslow, Foster began to have less time for railroad-building and more time for entertaining Miss Mackenzie, and for a month or so we seemed to be running on rock ballast and ninety-pound rails.

The weather was getting tolerably crisp-like before we were ready to jump the front ahead again, and a day or two before we moved over on to the new range near Flagstaff Foster and Miss Mackenzie got into some kind of an argument that seemed to have a mighty depressing effect on the thermometer.

One evening Foster went down to the box-car office to file a few messages in the waste-basket, and spent the evening with Miss Mackenzie. Having learned better, Matthews and I didn't wait up for the Big Fellow, and the only way I knew it was after midnight when he got in was the fact that he got so rough with the office furniture that I woke, thinking Tony Thomas's grandchild, the 771, had got careless and taken a running jump into our car.

I stuck my head out of my bunk long enough to see that Foster was acting kind and gentle, like a rear shack what's just got in from twenty hours on the road, after chaining up seven cars and putting in nine brasses, to find an order to double back on a coal-drag.

I felt sure something serious had happened. Like as not he had found a bent spike, or Tony had found a leaking flue, and, wanting to help him all I could in a serious situation, I rolled over and went back to sleep.

When I got up next morning to choke the alarm-clock, Foster was sitting at his table, his head in his hands, same as it was the last time I saw him, and then I knew there was something wrong.

And when I went over to the home-made corral to give Big Ben and my war-horse their mush and a handful of alfalfa, and found Steve digging himself out of the hay, I felt that I was close to the source of all evil.

"If I'd 'a' been as close to the house with the steel slats as you've been," I remarked, "I certainly wouldn't go back and start another bunch of trouble in the same community."

"More trouble?" Steve asked in surprise.

"What time did you register in?" I asked.

"'Bout midnight," says Steve.

"Did you go to Miss Mackenzie's office?" I says.

"You lookin' for information or amusement?" Steve says.

It was the way that Steve said it that made me lead him around to the sunny side of a rail fence where, for the next thirty minutes, we were mighty busy with some other people's affairs.

When Steve had drifted in, he found the box-car office lit up and Foster was holding the main line. Being nothing but a cow-puncher, Steve didn't see no harm in hearing a part of a conversation that drifted through a crack in the door, and from what Steve told me I'm sure that Foster invited the Female Mayor of Moqui to make a trip on the matrimonial division, and she had had other plans—for Foster.

She had been dreaming of him making a record run on one of those transcontinental pikes that lead to the White House or a transportation monopoly, and she *wasn't* going to marry him, so he'd be a great man some day.

I felt sure there must be some way to make Foster see that he still had a chance, but my early training didn't qualify me for breaking humans to double harness, and as for Steve, his idea of the way to handle a

delicate matter like a love affair was to go at it with a sledge-hammer and a crowbar.

Things just sort of drifted from frost to ice until we got orders to move on to Flagstaff; and then Miss Mackenzie came near ruining a lot of young lives when she refused to move with us. Foster didn't coax her to move either!

Seven varieties of grouches and cold weather caught up with us after we left Miss Mackenzie and Cosnino, and if the gang that was working east out of Ashfork hadn't met us just when it did, early in March, I know one horse-wrangler who would have shook the cinders of progress off his boots and gone back to an evil life; but having stayed until the rails met, I decided to hang around for the official opening, which was to be one grand, free-for-all special, from Winslow to the Fork and return.

Tony Thomas and the 771 was on the head end when a string of real, varnished wagons started from Winslow on the first trip. Dulin and his brakemen had borrowed all the blue uniforms in town, including Pop Beekman's relic of the days of '61, and went along as ornaments, seeing as how the special was the only train on the pike and there were no tickets or fares to take up, everybody being the guest of the road; and more than one fellow who had spent half his life on the dome of an Arizona pinta rode the cushions that day for the first time in his life. As for me, I rode the fireman's box over in the cab, just to show the natives that civilization hadn't taken none of the daredevil out of me.

The Female Mayor of Moqui wasn't among those present, Mr. Editor, though it wasn't because she hadn't been invited by every member of the crew and the officials of the road. To a man who was flirting with death by riding in an engine cab, that gent being me, it looked as if Miss Mackenzie was trying to avoid Foster's company.

Maybe it don't take much to make the worry slop around in a horse-wrangler's think-tank, but I want to say to you that the nearer that train got to Cosnino the more I thought of how a trainload of happiness couldn't get much of any place as long as the head engine was pulling and the second engine was backing up.

When we went crow-hopping around the wooded curve just east of Cosnino I was hanging by my toes out the window trying to see what was waiting for us around the corner. Every time I'm on the head end, going around one of those semi-circles, I feel nervous for fear a mountain or a pine tree has moved over on to the rails.

We were almost on to the straight track again, when I saw a dash of red darting back and forth across the track, and the woman who was swinging the flag looked so much like Miss Mackenzie that I just let loose my hold and unloaded to see what she could be doing a mile and a half from her regular boarding-house.

I heard Tony yell "Jump!"

And if I'd been a second slower, the fireman and I would have lit in the same spot. I heard the whizzing of the air as Tony gave her the big works, and before I had stopped mussing up the landscape I heard a crash, and then the train stopped.

Finding that I hadn't damaged anything but the gravel along the embankment, I crawled over to the fireman and found he had a bad-order wheel that would put him on the rip-track for a couple of months.

Being unable to do anything much for him and anxious about what had happened over ahead, I crawled under the coach and came out on the other side, just in time to come within a two-spot of colliding with Foster. A car-length ahead was Miss Mackenzie, so out of breath that she couldn't talk.

Tony Thomas's 771 was through the bridge over Cosnino Creek, and the first coach was playing seesaw on the bank. The piling in the temporary bridge had burned away, and the minute that iron war-horse got on to the weakened structure it went down.

Foster jumped and tumbled down the bank to the bottom of the dry ravine, and I tumbled and jumped down behind him. Miss Mackenzie didn't have the strength to follow, but sank down in a limp package on the bank, where she could see what was going on.

There were no signs of Tony Thomas. The engine cab was full of smoke and steam. I think Foster said the fountain was broken off, though he may have been kidding me.

Nobody ever accused me of being a coward, but I couldn't get my nerve up to follow Foster into that engine cab. I got just so far and sucked in a chunk of fire and brimstone, and then I packed out to fresh air; and when I realized that the Big

Fellow had gone on in—well—for the next year and a half I stood there with my mouth open, sucking in air and blowing it out again.

Then something loomed up in the steam and fell out of the wreckage, and I just had sense enough to get under it and make a soft place for it to light.

When I squirmed out from under the pile, I found it was Foster and Tony Thomas, and I wouldn't have taken a chance with a white chip on either one of them to win.

By that time the excursionists were about us in large numbers, and they carried Tony and Foster up on the bank. A hasty examination showed that the Big Fellow was in a bad way. Jets of steam had burned into his left thigh and leg until he looked like a horse that's been fired for the spavin.

Nobody besides Foster and Tony was hurt bad enough to brag about, and the minute that Miss Mackenzie saw that the Big Fellow had come out of it and showed a disposition to stick around these parts for a time, she and I started for the Cosnino box-car station.

I don't know how they cleaned up the wreck. That wasn't my part of the work when Miss Mackenzie told me that she had seen Stony Blain and Pete Norris riding off up the old Flagstaff trail, snaking it under spurs, just a few minutes before she noticed the whitish smoke hanging over the Cosnino Creek bridge.

I knew right then—the minute she mentioned those two polecats—that I had a new job. There wasn't time to go back and get Steve. I just run around to the Cosnino corral and climbed on to Big Ben.

I was gone two weeks.

I followed 'em seven days and was pressing them so hard they separated just below Diablo. Pete Norris's crime was in keepin' bad company, so I followed Stony Blain. We made quite a tour of the Painted Desert, took in the Moqui Indian villages, and got back into the Navajo country.

He shouldn't have done that. He should have known that the water-tanks there are few and far between.

When we got away out there, surrounded by seven thousand dollars' worth of nothing, I asked Big Ben to show me what he was made of, and he did. I rode the west side of the Mesa Draw all one night and nosed it into the Indiana Spring about a half-hour ahead of Stony, and when he came over the ridge into range I put his old fagged horse out of misery, knowing that no human could foot it from Indiana Spring to another water-hole afore the big thirst got him.

And there we stuck the rest of a red-hot day, a moonlight night and part of another day, him behind a hummock of sand and me just over the stone ledge with the water-hole at my feet. Big Ben was out of range, where he could stick his nose into the pool when he felt like it.

It wouldn't do to shoot a fellow when he's locoed with thirst—when he wouldn't know who did it—so I just gathered him up, fed him water and brandy until he stiffened up a bit; and then I asked Big Ben to carry double the second time in his career.

I drifted into Winslow between suns, being careful to have my markers and headlight covered; and before any one knew we were there, Hank and I had Stony tucked away in the penal sanitarium, sticking an extra piece of jewelry on his off foot to be sure that he didn't dig out and drag it.

It must have been about midnight when I drifted into the Monarch to wash some of the alkali out of my flues, and the first gent who offers to help me in the treatment was one Steve Crandall.

"'S all over," said Steve, as he threw the switch so that I could head in on the bar-track.

"You don't mean with Foster!" I exclaimed. "He's not dead?"

"Dead!" says Steve, pouring out three fingers of a liquid that wasn't cough-syrup. "Worse 'n that."

"Crippled for life?" I asked, thinking what a shame for that big fellow to go over the rest of the division on one side.

"Naw," said Steve. "You see, I told the woman—"

And he went wandering around in a circle like a tenderfoot in the timber, tellin' a lot of stuff that didn't make sense and ending up with:

"Take-a-Chance, there's going to be a weddin' in the hospital to-morrow morning at nine-thirty, and we're goin' to be on hand to see that the bride is gave away right and proper, besides bein' duly and sanitarily kissed."

"Kissed!" says I.

"You said a mouthful," said Steve. "You and me and Matthews and Mahoney and Tony Thomas and his fireman have promised to kiss the bride."

"Make mine a little rye," says I, feelin' the need of a bracer.

"Little of the same," says Steve.

"Well," says I, "I never did kiss a bride in my life, but here is one little horse-wrangler who is willing to take a chance."

P. S.—When Jim Foster brought his wife back to the Arizona North and South, to be superintendent, Matthews didn't come with them. I understand he's in New York, and I wish you'd tell the fellow who rides the mail there to tell Matthews "Hello" for me; and that I'm a candidate for sheriff of Navajo County with the backing of the railroad men.

P. S. Second Section.—You understand, Foster is the superintendent; his wife ain't in politics no more since she resigned being the Female Mayor of Moqui.

(The end.)

THE CHEAPER-FARE MAN.

BY STRICKLAND GILLILAN,
Author of "Off-Again, On-Again, Gone-Again Finnegan."

HE said three cents a mile was far too high
To carry passengers upon a train.
Two cents would let the railroad folks get by
With quite a margin of illicit gain.
And then he went and cranked his little car
To take a journey down the countryside—
This man who knew the railroads went too far
In charging three-a-mile to let him ride.

HE traveled twenty miles, which would have cost
A sixty-cent piece in the varnished vans.
An hour at most is all he should have lost
In time—worth-while asset of any man's.
His gasoline cost eighteen copper cents;
The gear-grease cost him five—that and the oil.
That's twenty-three centavos, to commence;
And on the way he'd trouble with his coil.

HE was delayed two hours on the road
To fix a tire that had annexed a nail,
And to replace the "unit" that had showed
A tendency to sputter out and fail.
These cost him seven dollars and a half
Before the final settlement was made.
Then two miles farther on he hit a calf
That from some Lincoln highwayman had strayed.

BUT still there is no doubt in his mind
That sixty cents for going twenty miles
Is downright stealing of the grossest kind,
And should be stopped by law—excuse these smiles!
The only way to travel (we've found out
By many years of painful observation)
That doesn't cost ten cents, or just about,
For every mile, is railroad transportation.

On the Editorial Carpet

Where We Gather in the Hut, Tell Our Troubles, Help One Another, and Sing Some Old Songs.

HOW the soul of *Henry Evans,* mill foreman, Panama dredge boss, bit of flotsam in that little old New York that is the biggest and most lonesome place in the world to the fellow who is out of a job, fared in the crucible of human suffering—that's the theme of next month's novel that will have you alternately wiping your eyes and laughing at its delicious humor and whimsicality revealed as you turn the pages. Be sure to read

THE WHISTLE,

A Novel to Grip Your Heart,

BY MAY WILMOTH AND OLIN L. LYMAN.

THEN there's *Danny,* introduced to you in the tense prologue. Well, what shall we say of *Danny?* The test of any character lies in the hold which it has upon the author, plus, of course, the requisite skill in depicting the character.

Mr. Lyman wrote, after the prologue was finished, "We felt as if we had been attending a wake," which was his jocose way of indicating a humanly serious state of mind that demands nothing less than tears as a tribute. And we can only add that we don't wonder, and that the man or woman who can read that prologue unmoved is not possessed of the heritage that is supposedly common to all of us—a human heart.

Then there is another youngster worth while—*Georgie,* who will bring you back to your own childhood days, for he's made of real flesh and blood transferred to paper. And there is— But you must read it for yourself next month, all of it; and we will defy anybody who starts the first page not to read through to the last word of this powerful, sympathetic, and vital study of human nature in the raw.

Miss Wilmoth is a new though welcome contributor to these pages, but you are sure to remember Mr. Lyman as co-author with Tom Townsend of the *"Brick" Mulford* stories. He is also the author of "The Signal-Tower Ghost," which appears in this issue. However, in "The Whistle," Mr. Lyman, in collaboration with Miss Wilmoth, has far exceeded in excellence any previous work he has done for this magazine, so you have an exceptional treat coming.

Nothing more compelling than this story has been offered in the pages of THE RAILROAD MAN'S MAGAZINE. Read it, complete, in the June issue, and be convinced.

* * * * * * * * *

DID you know that a thermometer has been built which is so sensitive that it is affected by the heat of a candle at the distance of fifty-three miles? Well, anyway, it is so. Naturally, a science sharp with instruments like that would shout, "Cinch!" when a railroad asks him to determine whether the temperature-correction factor for specific gravity of a particular fuel oil should be four ten-thousandths or five ten-thousandths of a degree Fahrenheit. Incidentally that little piece of information meant a gain or loss to one road of between two thousand and three thousand barrels of oil a month on a single contract alone.

Uncle Sam's Bureau of Standards did it. And this is only one of the thousand interesting ways in which it shows the railroads how to get their money's worth.

But the work the Bureau of Standards is doing for the railroads is only one phase of its many activities. The whole romance of this marvelous organization—not the railroad end alone—with lots of pictures—next month complete. This is the most important article which Charles Frederick Carter ever wrote for us.

OF course there 'll be other articles; did we ever fail you for number and variety as well as for quantity and quality? (The answer to this question is, No.) George Allan England has an interview with that brilliant engineer, Warren Noble, on the marvelous civilization that shall have developed five hundred years from now, with special reference to its transportation systems. Theodore Benton writes in his usual fascinating way about railroad time and railroad timepieces—time, by the way, is as much of a human concept as the timepiece is, when you stop to think about the matter, and both concepts are among the most interesting ever formulated by the mind.

HOW the milk is chased to New York City all the way from northern New York and even from Canada is the subject of an interesting article by E. L. Bacon. "J. E. M.," who struck twelve with the veteran railroad men by his articles dealing with old times on the Erie, comes across next month with some reminiscences of old times on the telegraph companies of a generation ago. Believe me, it is a paper that will bring the smiles of a long-lost youth to the lips of many a thousand grizzled brass-pounder, while at the same time it will cause the ears of the youthful ham to flap in wonderment.

And good old reliable C. H. Claudy is right there once more with another paper on signal-practise. This time he discusses automatic signals and train-control.

Round table got left out this issue. Next month it comes back strong. Fiction, fact, anecdote, reminiscences—great!

THERE is much to be said on behalf of the short stories which will appear in THE RAILROAD MAN'S MAGAZINE for June. Most of it I shall leave unsaid, thereby piquing your curiosity. After you've read the stories you can write *me* what *you* think, instead of *my* writing *you* what *I* think in advance. Here's just a partial list:

Charles W. Tyler will make you chuckle over the adventures of his bucolic boomer telegrapher, *Hiram*, who gets a baching job in the wilds of the Southwestern desert; J. C. Wright will force the laughter pealing from your esophagus with his account of the mishap that befell a shack who took up the box-game for a livelihood; and Floyd T. Wood is sure to give you muscular exhaustion of the diaphragm from laughing over the wos of a station-agent who had to board a calf, all on account of his own foolishness. *Honk and Horace* and the *Country Station-Agent* will, of course, collect their own meed of cackles, as they have done mostly for yeahs and yeahs—not to say yeahs.

Snickers as usual!

WILL "JUICE" SUPPLANT "FOG"?

WELL, I'll bite: *will* it? Some time ago Mr. Arthur Curran contributed an article contending that the electric tractor will never drive the steam locomotive out of existence; and now along comes another good friend of the magazine, namely, Mr. Irwin B. Smith, who argues herewith that the lightning-actuated hog is just as likely as not to put the well-loved old "bullgine" of song and story into the same class with the pony express. Me? Oh, I pass, brother; I pass. Mr. Smith, speak your piece:

In a recent issue of THE RAILROAD MAN'S MAGAZINE Mr. Arthur Curran discusses the question whether steam locomotives will ever be superseded by those electrically propelled, and arrives at the conclusion that while electricity has supplanted steam for a number of special kinds of railroad service, and will continue to, it will probably not do so under present conditions for long main lines, especially where the freight traffic is heavy.

The special instances for which Mr. Curran freely concedes the superiority of electricity are as follows:

1. Where electrical operation is enforced by law.
2. Congested terminals.
3. Heavy suburban traffic.
4. Long tunnels.
5. Mountain divisions with heavy grades.

To this list I shall add—I am sure with Mr. Curran's approval—divisions that can

be supplied with very cheap hydroelectric power.

For the above, electricity has already supplanted steam on some of the most important divisions in the country, and it is only a question of time before most of the divisions of this character will be electrified.

Let us consider, therefore, main line electrification. Mr. Curran states that "there is no likelihood of the triumph of electricity over steam in the immediate future" for main lines, and he gives as the reasons for this statement:

1. Electric locomotives are not so rugged and powerful as steam locomotives.
2. The first cost of electric locomotives is prohibitive.
3. The loss entailed by scrapping the present steam equipment and repair shops would drive many roads into bankruptcy.

In several places Mr. Curran intimates that the electric locomotive is delicate as compared with the steam locomotive and cannot stand up as well under the rough service. The proof of the pudding is in the eating thereof: Where electricity has supplanted steam, the train-minute delays due to failure of equipment or power-supply have been greatly reduced, while the repair and maintenance expense of electric locomotives is about one-half that of the superseded steam locomotives. The electric is undoubtedly the more rugged of the two.

"The New Haven's freight-trains are not heavy (1,500 tons)," says Mr. Curran, "so the motors do well enough." And further on, "The electric can never possibly be the great mechanical brute that our high-powered steam locomotives may be typified as being to-day."

I take these statements to mean that electrics are not powerful enough to haul heavy freight-trains. Well, as to that, two Westinghouse electric locomotives haul trains of 3,250 tons on the Norfolk and Western at just double the speed possible with the three huge Mallet steam compounds previously used. The limit of the horse-power capacity of steam locomotives has about been reached, but while the Norfolk and Western electrics exceed in horse-power capacity any locomotives—steam or electric—that have yet been built, units of double their capacity have been designed and will probably soon be in service; and still the limit of the electric is not yet in sight.

Then, too, there is the possibility of electric multiple-unit operation—that is, the use of trains with every other car equipped with motors—thus providing for practically unlimited power. Multiple-unit trains can be run over the longest line that this country will provide.

Mr. Curran sums this part of his argument up by saying it must "be demonstrated that the work now done by steam locomotives can be improved upon by their electric competitors." This has been demonstrated beyond all doubt.

Coming now to the question of first cost, Mr. Curran puts the cost of an electric unit, equivalent to a steam unit costing $25,000, at $250,000, because its proportion of the cost of the power-house and transmission system must be charged against it. This method of calculation is correct, but the way of stating it might, I should say, be improved on.

If a division is electrified and only one electric locomotive is used on it, the whole cost of the electrification must properly be charged against this unit. But if there are ten units, the cost of each would not be ten times the cost of one alone; and if there are forty, the cost per unit would be still less. Hence a definite figure per unit is utterly misleading. But the higher cost of the electric units must be conceded, and they may cost five or six times more than steam units on the above basis.

However, Mr. Curran forgets to consider the other side of the question, namely—the reduction in operating-expenses effected by the electrics. Electrics will haul more cars per train, will haul them more miles, and at a greater speed. Hence fewer electric locomotives than steam units are required for the same service, and the operating-expenses are considerably less.

The coal consumed in the power-house is just about one-half that needed for steam locomotives for the same work; and, as we have already seen, the repair and maintenance expense of the electrics is also considerably less.

The whole question of cost depends on the density of traffic. If there is enough traffic, electric operation will be cheaper than steam. Mr. Curran to the contrary, there is nothing "speculative" about the matter; conditions can be analyzed with precision and the commercial success or failure of the electrification can be determined in advance.

As to Mr. Curran's third objection to electrification, unless electrification is instantaneous all over the country the steam locomotives supplanted on one division will have ample opportunity to wear themselves out on another. The total loss of the repair shops would be regretted by no one except the repair staff, but unfortunately electrics will still need some repairs even if not so many as the steam locomotives.

To sum up, electricity will undoubtedly supplant steam in the near future for many main-line hauls. Many of the readers of this article will probably live to travel in electric trains from Richmond to Boston, from Philadelphia to Cleveland, New York to Buffalo, and perhaps Chicago; and at that time many other main lines will be in operation, especially in localities where hydroelectric power is available in large quantities.

On the other hand, electricity will probably never completely supplant steam for railroads any more than it has been able to supplant completely the horse for street railways.

IRWIN B. SMITH.

New York City.

THE RAILROADER'S MAIL-BAG.

REMEMBER that letter in the March issue of our department, "By The Light of the Lantern," in which a correspondent signing himself "Hogger" bawled us out for the alleged inaccuracy of the information we dished up to inquirers? Well, you never heard of such a panning as Mr. Hogger got from readers as soon as their horrified gaze fell upon that kick of his. Below you will find a few of the mildest letters concerning Mr. Hogger and his general hepness to the railroad game—and even these letters have been pretty generally denatured:

In your issue of March, 1916, I note a communication from the Gentleman from Alberta, signed "Hogger," by which slang phrase I take it he means to convey upon himself the title of engineer.

If Hogger is right in his contention of your answer to "E. P. W. Chic." in the November issue in regard to the duties of a brakeman, and to the general reliability of the information to be found in your "Light of the Lantern Department," then my knowledge of my duties as a brakeman are all wrong. I do not like to admit this until I have something more practical to accept in its stead.

And as for your magazine, it has always been my ideal, combining as it does amusement with valuable information to all railroad men. And for the "Light of the Lantern," I have always accepted it as an authority, as it has been of no little help to me in arriving at my present understanding of railroading. But what I cannot at present understand is how an engineer on any modern railroad can have so little knowledge of the cooperation that is expected from the other members of the crew in the handling and control of a train.

WALTER F. GRIMM.

Brakeman, B. and O. R. R.,
Massillon, Ohio.

I am working on a four per cent grade where Old Man Westinghouse can't do it all. We stop the rear portion in case of a break, and we also set up about half the hand-brakes to make a stop.

Should Mr. Hogger ever venture out where the use of air-brakes is not alone—"whoosh, she's on; and whoosh, she's off"—he would soon learn the difference between a hogger and an engineer. SHACK.

Salt Lake City, Utah.

When you have to contend with men that have never seen but one right-of-way, you must expect to hear from lots of narrow-minded people, and I thank you for the way you stick up for the stinger. I am one myself when I can get it to do and a tallow-pot when I cannot, and in my travels I have met lots of different kinds of rails, and I will say right here that a smoke-eater hitting a new job gets more abuse from a hogger than any one else connected with a railroad. He does not get a chance to show whether he is a good man or not, the pigeye hands it to him anyway. He seems to think it is good for his soul to try and scare him.

This may not sound good to lots of hoggers, but it has been my experience in knocking around, and lots of others will tell you the same.

Although I am not a regular subscriber, I always read the RAILROAD MAN when I have the money to buy it, and when I have not, I hit up the reading-room of some Y., and I will say that I have learned lots of useful things from the Light of the Lantern.

Wishing you all the good luck in the world, I beg to remain,

H. H. STONER.

New Orleans, Louisiana.

J. E. M. RANG THE BELL.

OLD "J. E. M." sure rang the bell with his reminiscences of old times on the Erie, which appeared in the March issue. The boys who signed the payroll in those days of the "yellow book" and the link and pin have been writing in enthusiastically about that article for weeks past. Mr. J. E. M., by the way, spins some yarns in this number (pages 83-89) about the dear dead departed "Gould Southwestern," and next month he has some remarks to make on the subject of old times with the telegraph companies. Here goes for a few of the many letters about his Erie article:

Surely the little story in your March issue by J. E. M. (whoever he is; I must know him, but cannot place him by the initials) strikes me hard, having been a telegraph operator for Ras Lewis for many years both at Newburgh, New York, and at Jersey City, and finally taking the chair so long occupied by Ras as train-despatcher on the N. Y. L. E. and W.

I often wonder how many of the old Erie boys are still alive. I heard recently that Mr. E. O. Hill has been dead about seventeen years. He was superintendent of the Eastern Division of the Erie Railroad for seventeen years, when he was succeeded by Mr. J. N. Barrett. I also remember well "Eg," J. E. Smith, and George L. King, having sent many an old-fashioned train-order under their signatures while operator at Newburgh, New York. But there is one old

despatcher whom J. E. M. seems to have overlooked—that is old Uncle Abe Wandel—who also had a trick during the time that Ras Lewis and U. K. Still were working the J. C. end.

I begin to think that I am quite ancient in the business when I look back upon the days gone by, having begun as night operator on the old Pennsylvania Railroad, and at one time taking the night job at NP office at Menlo Park, New Jersey, just after Tom Edison quit to go to Metuchen to take up experimental work on electric lights. Old John Hussey was agent at that time. I am still in the harness, having been with the S. P. Co. for the last twenty-six years. I wonder if any of those old P. R. R. operators are still in harness who worked on the J. C. end of the road when Billy Ettinger was day despatcher and Ed. Brook night despatcher at the J. office.

Should this catch the eye of any old-timers, I'd like to hear from any of them.

F. J. FACKRELL,
Agent, S. P. Co.

Hickman, California.

Who is J. E. M., the author of "Old Times on the Erie"? Whoever he is, he knows what he is writing about. I am an old-timer on the Erie myself, and knew every man that J. E. M. mentioned, and would like to meet J. E. M. himself. A lot of us old fellows over here read "Old Times on the Erie," and it made us all homesick for the good old days again.

Let us have a lot more from J. E. M. It does us good to read stuff like this. I have been a constant reader of THE RAILROAD MAN'S MAGAZINE for eight years, and "Old Times on the Erie" hits me better than anything yet.

HARRY G. STEINER.

Erie Railroad, Jersey City, New Jersey.

I want to tell you that I worked for the Erie in 1881, and know Ras Lewis and the others J. E. M. tells about. Say, that man knows the Eastern division all right! The clam-bakes at Port Jervis were the great social events of the summer to us railroaders, and Ras Lewis could bake clams, too.

I wonder if J. E. M. won't write some more about the old Erie soon. I am an old conductor, and lost my right arm in the Bergen Yards in 1881. Maybe J. E. M. knew me. Excuse this letter.

WILLIAM FLINT,
Watchman.

Newark, New Jersey.

FOUND! THE MEANEST CROOK.

OYEZ, oyez, oyez! We've located the meanest crook in the world. He isn't brave enough to steal the pennies from a blind beggar's cup; he isn't bright enough to sell Confederate money to immigrants who can't read English. No; his specialty is in minting mother-love, in coining the tears shed for lost ones— But here; read about him and his dirty work in this letter from Mr. R. M. Peck. A man who would do a trick like that ought to get sentenced for life in the Dry Tortugas:

Here a short time ago you published at my request in your magazine an account of the disappearance of one Walter B. Ryerson, my cousin, who has not been heard from in five years. Not long ago his mother, living in Warwick, New York, received a letter from a man in Columbus, Ohio.

He said that Walter was there and wanted to come home, but had had an accident on the railroad and didn't have the money to come with, and if she could send all, or send part of the fare, the writer would furnish the rest. And so the poor mother was so anxious to see her boy she sent all the money she could rake up, which was sixteen dollars.

A few days later she received a letter saying they would be in Warwick on a certain day. She was there at the depot to meet all trains, and is still watching and praying for her boy that did not come.

Now, imagine the anxiety that poor old soul must have suffered, and it was all brought on by one of the meanest, lowest crooks that possibly can exist, defrauding broken-hearted mothers and loved ones. She wrote the chief of police in Columbus, but the crook had disappeared.

R. M. PECK.

McMinnville, Oregon.

ADDRESSES WANTED.

Readers of the RAILROAD MAN'S MAGAZINE *who make requests to locate missing relatives through these columns must abide by the following:*

All requests must be written in ink and a complete description of the missing person given, as well as full name and age.

We will not publish these notices unless they are signed by the nearest living relative of the missing person, and we must be assured that every effort has been made to locate him through the various brotherhoods or associations to which he might belong.

The person making the request must also give his or her complete address.

INFORMATION is wanted of the whereabouts of R. W. (or Walter) Peck, about thirty years of age, 5 feet 9 or 10 inches in height, rather square build, round-shouldered, dark hair, gray eyes; has a scar over right eye; he has rather dark complexion. When last heard of he was braking for the Frisco Railway out of Fort Smith, Arkansas, in 1909. Any information concerning him will be appreciated by his brother, George Peck, 214 North Main Street, Temple, Texas.

SONGS BY BARDS OF THE RAIL.

THE TELEGRAPHER'S SONG.

FROM every corner of the earth
The startling news we bring;
We weave a girdle round the globe
And guide the lightning's wing.

Far as the distant thunder rolls
O'er stream and rock and sea,
We join the nations in one clasp
Of friendly unity.

We touch our key and, quick as thought,
The message onward flies—
For every point within the world
Right at our elbow lies.

Ours is the greatest boon to man
That genius yet has given—
To make a messenger of thought,
The lightning bolts of Heaven.

J. A. WYLLIE, in "Lightning Flashes and Electric Dashes," 1882.

SAND WILL DO IT.

I OBSERVED a locomotive in the railroad yards one day.
It was waiting in the roundhouse where the locomotives stay;
It was panting for the journey, it was coaled and fully manned,
And it had a box the fireman was filling full of sand.

It appears that locomotives cannot always get a grip
On their slender iron pavement 'cause the wheels are apt to slip;
And when they reach a slippery spot their tactics they command,
And to get a grip upon the rail they sprinkle it with sand.

It's about the way with travel along life's slippery track;
If your load is rather heavy you're always slipping back;
So, if a common locomotive you completely understand,
You'll provide yourself in starting with a good supply of sand.

If your track is steep and hilly, and you have a heavy grade,
If those who've gone before you have the rails quite slippery made,
If you ever reach the summit of the upper tableland,
You'll find you'll have to do it with a liberal use of sand.

If you strike some frigid weather and discover to your cost
That you're liable to slip up on a heavy coat of frost;
Then some prompt, decided action will be called into demand,
And you'll slip 'way to the bottom if you haven't any sand.

You can get to any station that is on life's schedule seen
If there's fire beneath the boiler of ambition's strong machine;
And you'll reach a place called Flushtown at a rate of speed that's grand
If for all the slippery places you've a good supply of sand.

Richmond (Indiana) *Register.*

THE CHARM OF A UNIFORM.

WHEN I was just a freight-shack,
She didn't care for me;
But now I am promoted
To plush-run Number Three.
I wear a nifty uniform,
With lots of buttons bright,
And now she smiles her prettiest,
And thinks I'm out of sight.
And the single, simple reason
That I took her heart by storm,
Isn't beauty, brains, nor money,
But—I wear a uniform.

And there's our good old hoghead,
The finest chap in town;
The girl he thought the most of,
She always turned him down.
Didn't seem to mind his absence,
And his presence tried to dodge,
Till one day he took a notion—
Joined a patriotic lodge.
And she went into a rapture—
"Noble bearing! Manly form!"
And she thinks there's no one like him,
When he wears his uniform.

Oh, go and join the navy,
Or go and join a band;
Or go and join the army,
To protect your native land;
Or go and be a bell-boy—
It matters not a bit
About the job or wages—
You're bound to make a hit.
But you mustn't get conceited
When you take all hearts by storm,
For you're simply the appendage
To your dazzling uniform.

LYDIA M. DUNHAM O'NEIL, in *Trainman.*

Make your home secure!

Though protected against foreign invasion, is your home secure from domestic enemies? Cold floors, damp walls, drafty halls, and chilly bed-rooms offer easy passage to an army of ills which lay siege to the daily trials of the mother and menace the health of the little folks and the aged! Safeguard your home forever by putting in an outfit of

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Wasn't it Edison who stayed up half the night educating himself in spite of every handicap you could ever have?

All big men who have made their mark in the world had the *ambition*—the *determination*—to improve their spare time, to train themselves for big work. You, too, can possess power, money and happiness if you'll only make the effort. The reward is great—it's worth it.

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- ☐ Mechanical Draftsman
- ☐ Machine Shop Practice
- ☐ Gas Engineer
- ☐ CIVIL ENGINEER
- ☐ Surveying and Mapping
- ☐ MINE FOREMAN OR ENGINEER
- ☐ Metallurgist or Prospector
- ☐ STATIONARY ENGINEER
- ☐ Marine Engineer
- ☐ ARCHITECT
- ☐ Contractor and Builder
- ☐ Architectural Draftsman
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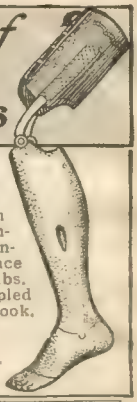

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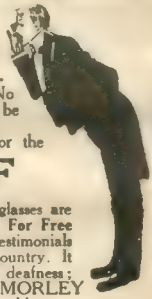

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TRAFFIC

—Offers Big Jobs To Trained Men

The field of Traffic is the field of Opportunity for trained men today. The unparalleled business expansion resulting from the Great War has had its most direct effect on Commerce. More goods are being shipped and shipped greater distances than ever before in history. And more money is being wasted—more money lost than ever before—simply because there are not enough men—trained in Traffic to classify commodities properly—to figure routings most economically.

More Experts Needed—Salaries of $35 to $100 a Week Paid

A half million shippers—railroads—corporations—manufacturing concerns everywhere are asking for men who know how to figure lowest shipping rates. Such experts can save their employers hundreds and thousands of dollars in lower freight charges. On advice furnished last October by the American Commerce Association, an Ohio manufacturer saved $3000 on a single shipment to Vladivostok via Vancouver. Study of the A. C. A. Traffic Library Volume on Carload Minimum enabled the Traffic Manager of a Detroit Automobile concern to discover a leak that would enable them to save $121,650 a year on only four items shipped to four distributing centers. Is it any wonder that Trained Traffic Men can almost dictate their own salaries?

WHAT EXPERTS THINK OF OUR WORK

Mr. H. W. DeWitt, Eastern Traffic Manager of the Western Electric Company, says: "Having personal acquaintance with a few members of the Association, men whom I know to be experts, it seems to me that the American Commerce Association is better equipped with men of experience in the traffic field for the training of traffic men than any other organization, correspondence school or college which has come to my attention."

Mr. C. C. McCain, Chairman of the Traffic Line Committee representing fourteen Eastern railroads, says: "The American Commerce Association has provided a training service which appears to be the broadest, most complete tariff, rate and traffic training yet devised."

Study Traffic!

Why not? Never was the demand greater for Traffic Experts—never has such an unusual opportunity been offered to acquire this expert knowledge. To meet just this need for more men trained in Traffic—to raise the standards of the Traffic profession every year—a group of hard headed business men—all leaders in the Traffic field have organized the American Commerce Association. Such men as H. G. Wilson, President of the National Industrial Traffic League, J. S. Brown, Manager of the Transportation Department of the Chicago Board of Trade and several hundred other men of like calibre are backing this unusual Association. As a part of the work of the Association, an Educational Department has been formed to train men for the Traffic field. This department—through its correspondence instruction—makes it easy for you—or for any man of ambition to become a Traffic Expert. You share the knowledge of the really big men of the Traffic world—profit by their hard earned experience—benefit by their personal cooperation.

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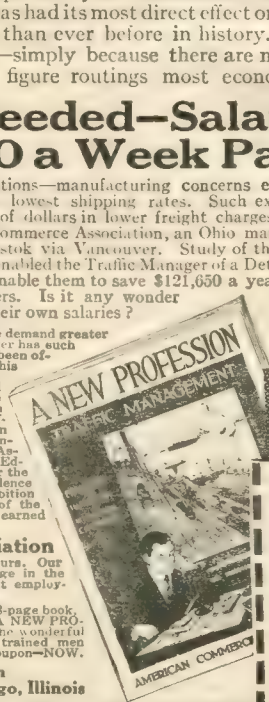

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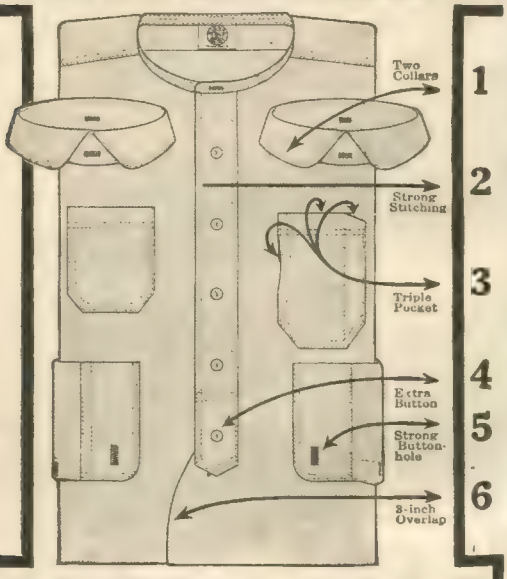

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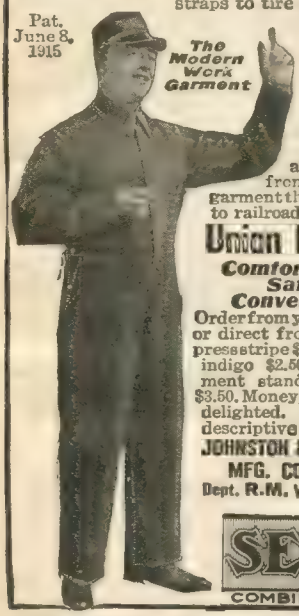
Pat. June 8, 1915



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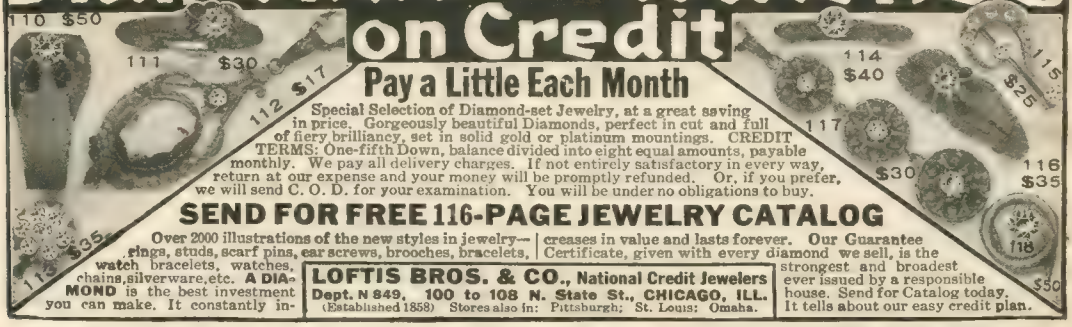

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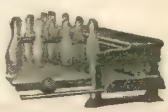

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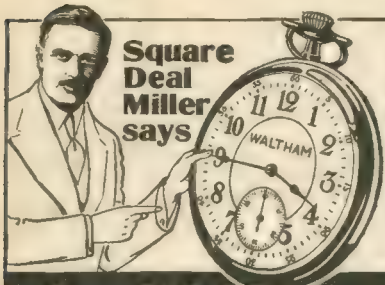

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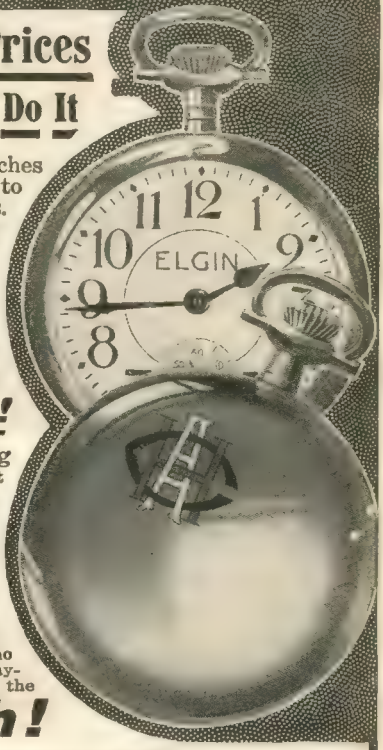

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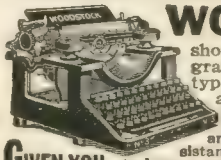

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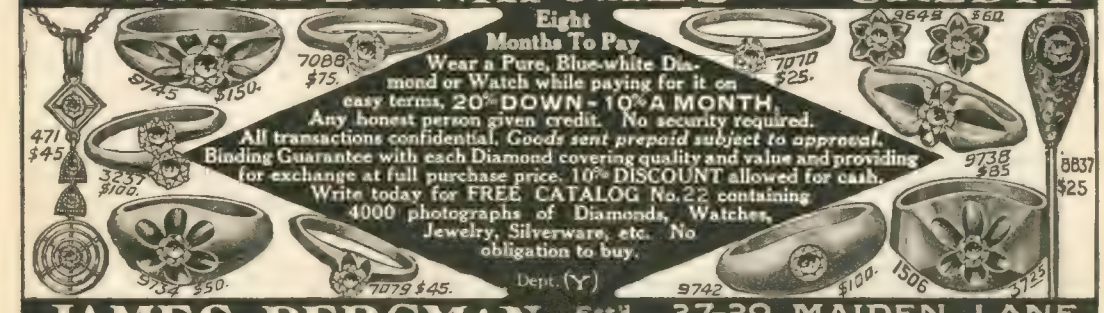

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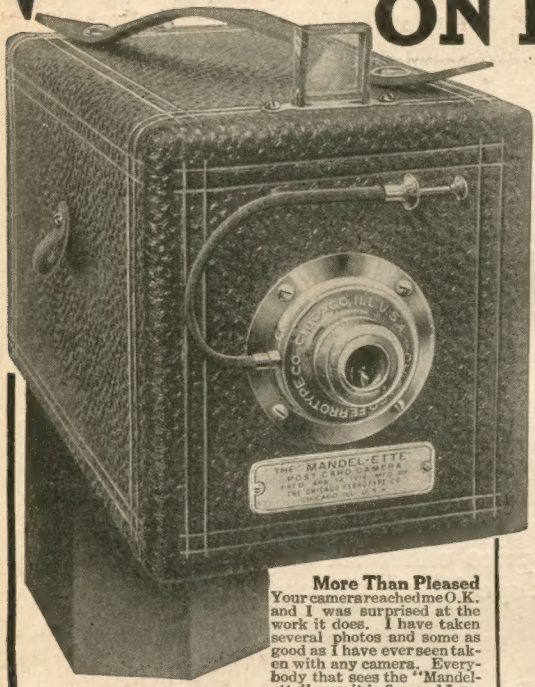

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The "Mandel-ette" received and opened and in 20 minutes I took a splendid picture of my wife, fully developed and ready to look at. My, this beats all things yet.
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I am enclosing pictures taken with my "Mandel-ette" to show you gentlemen what I am making. Nobody taught me but your instructions. I am making pictures with great pleasure and my friends are amazed at your very high grade minute camera.
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